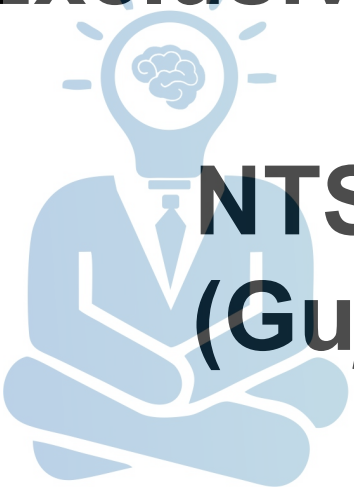
An
Exclusive Study Material
For
NTSE Phase - I
(Gujarat Board)



X – SOCIAL SCIENCE
NTSE COMPLETE MODULE
CONTENT

GEOGRAPHY

HISTORY

ECONOMICS

GEOGRAPHY

1 – NATURAL RESOURCES

1. RESOURCE AND ITS USES

The elements found in nature which man utilises with his skill and with the help of science and technology to satisfy his wants are called resources.

USES OF RESOURCES

- **RESOURCE - AS FOOD**

Crops, vegetables, fruits obtained from agriculture are used as food. Cattle provides us with milk and meat. Milk is used to prepare milk products which are consumed by man. Fish is a staple diet in the coastal areas. Bees give us honey.

- **RESOURCE - AS A SOURCE OF RAW MATERIAL**

Resources provide raw material for example- trees provide us with wood for construction and for furniture. Various goods obtained from forests, agro-products, wool, hides and meat available from animals, mineral ores etc. form the raw material for many industries.

- **RESOURCE - AS ENERGY RESOURCES**

We use coal, petroleum, natural gas etc. as fuel in industries as well as domestic fuel. Besides, energy can be generated through solar insolation, wind, sea waves, tides and ebbs and waterfalls etc.

2. TYPES OF RESOURCES

Resources are classified as follows:

(a) On the basis of origin
(b) On the basis of exhaustibility
(c) On the basis of ownership
(d) On the basis of distribution centres

(a) On the basis of Origin

(i) Biotic - These resources are from biosphere and have life. For e.g. vegetation and animals.

(ii) Abiotic - These resources come from non-living things. For e.g. rocks and minerals.

(b) On the basis of Exhaustibility (wearing out)

(i) Renewable - Those resources which can be renewed by physical, chemical or mechanical process. For e.g. water and wildlife.

(ii) Non-renewable- Those resources which cannot be renewed or take a very long geological time to occur. For e.g. coal and mineral oil. However some non-renewable resources can be recycled. For e.g. iron and copper.

(c) On the basis of Ownership

(i) Individual resource - This resource is owned by an individual or family. For e.g. land and building.

(ii) National resource - This resource is owned by the country. For e.g. Forest and army.

(iii) Global resource- This resource is collectively owned by all nations of the world. For e.g. ocean routes and air space.

(d) On the basis of Distribution

(i) Universal resources - These resources are found everywhere. For e.g. oxygen and nitrogen.

(ii) Generally available resources - These are easily available. For e.g. land and water.

(iii) Rare Resources - These are only available at limited places. For e.g. coal and mineral oil.

(iv) Solitary Resources -These resources are available at one or two places in the world. For e.g. Cryolite mineral is only found in Greenland.

3. NEED FOR CONSERVATION OF RESOURCES

- ✓ Resources are needed by human beings to satisfy their wants. However, the resources are limited and human needs are unlimited.
- ✓ With development of science and technology and increase in population, the resources are being exploited and are getting exhausted.
- ✓ It is our duty to rationally use the resources and conserve them for the future generations.

4. STEPS FOR PLANNING AND CONSERVATION OF RESOURCES

Resources are limited and we are exploiting them. They should be saved for future generations so we need to conserve them.

These steps can be undertaken to conserve resources: -Information must be collected about the availability of unutilised and probable resources of the country, state or region.

- ✓ The resources which are limited or non-renewable should be rationally used to see that they are not exhausted.
- ✓ Attempts should be made to develop those resources whose quantity can be increased.
- ✓ The resources which are cheaper and are easily available should not be wasted, but instead they should be used rationally to sustain them for future generations.
- ✓ Those resources which are in limited quantity should be conserved by finding their alternative option through technical development.
- ✓ Necessary laws should be formed for the conservation of resources and should be enforced strictly.
- ✓ Citizens should be made aware of all the facts related to rational use of resources.

5. SOIL

- ✓ The uppermost layer of the crust of the earth is called soil.
- ✓ It contains minerals and biotic elements which are necessary for the growth of vegetation.
- ✓ It takes many years to form soil.

Formation of Soil

- ✓ Soil is formed from parental rocks plays through the process of denudation and disintegration due to factors like climate and time which also play an important role.
- ✓ The loose fragmented gravel is then mixed with biotic elements.
- ✓ Water and air also mix with it and the soil is formed.

6. TYPES OF SOILS

The Indian Council of Agricultural Research (ICAR) has divided soils of India into 8 types.

Alluvial Soil	Red Soil	Black Soil	Laterite soil
Desert soil	Mountain soil	Forest soil	Marshy' or Peaty soil

Alluvial Soil

- ✓ Alluvial soil is spread over about 43% of the total area of India.
- ✓ This soil is found in the northern plains in the river basin regions of Brahmaputra in the east, Satlej basin in the west and Yamuna and Ganga basin in the centre.
- ✓ It is also found in the delta regions of Mahanadi, Godavari, Krishna and Kaveri.
- ✓ It is formed by the alluvial deposits brought down by the rivers from the mountains and hills. - It is a fertile soil containing potash, phosphoric acid and limestone but it has less of nitrogen and humus.
- ✓ If pulses are grown after crops, the nitrogen content can be maintained in the soil.
- ✓ Crops like paddy, wheat, sugarcane, jute, cotton and oil seeds are grown in this soil.

Red Soil

- ✓ Red Soil occupies about 19% of the total land of India.
- ✓ It is spread from the peninsular India upto Bundelkahnd in the north and from Rajmahal Hills in the east upto Kutch in the west.

- ✓ The soil is red in colour due to the presence of ferric oxide and it becomes yellow when it is hydrated in the lower areas.
- ✓ Lime, gravel and carbonate are not found in this soil.
- ✓ Crops like millet, cotton, wheat, jowar, linseed, groundnut, potato are grown in this soil.

Black Soil

- ✓ Black or Regur soil covers about 15% of the total area of India.
- ✓ Lava rocks and climate have played an important role in its formation.
- ✓ Such soil is found in entire Maharashtra, Western Madhya Pradesh, Andhra Pradesh, and certain parts of Karnataka.
- ✓ This soil contains (maplic) magnesium, aluminium, potash, lime, iron and calcium.
- ✓ It is quite fertile and has the capacity of retaining moisture but when the moisture dries up it develops fissures.
- ✓ Crops like **(climgut)** cotton, linseed, mustard, groundnut, udad and tobacco are grown in this soil. It is also called cotton soil.

Laterite soil

- ✓ The name of this soil comes from the Latin word 'Later' which means a brick.
- ✓ It is red in colour due to the presence of iron oxide.
- ✓ When this soil is wet it is smooth like butter and when it dries it becomes very hard.
- ✓ It is formed due to the dry and moist climate and due to the poor silica in the soil.
- ✓ This soil contains more of potash, iron and aluminium.
- ✓ The soil is less fertile but if fertilizers are used - cotton, paddy, ragi, sugarcane, tea, coffee, cashew can be grown.

Desert soil

- ✓ This type of soil is seen in the area where the climate is arid or semi-arid.
- ✓ The soil is sandy and infertile.
- ✓ It contains salt and lacks humus.
- ✓ Rajasthan, parts of Haryana and Southern Punjab have this type of soil.
- ✓ In Gujarat it is found in Kutch and some parts of Saurashtra.
- ✓ With irrigation facilities, crops like millet and jowar can be cultivated in this soil.

Mountain soil

- ✓ This type of soil is found in the valley and slopy regions of Himalayas at an altitude of about 2700 to 3000 meters where pine and chid trees grow.
- ✓ Its layer is very thin and it is underdeveloped.
- ✓ It is found in Assam, Darjeeling, Uttarakhand, Himachal Pradesh and Kashmir.

Forest soil

- ✓ This type of soil is found at a height of 3000 meters to 3100 meters in the coniferous forests of Himalayas (Terrai region), Sahyadri and Eastern Ghats.
- ✓ The surface of the earth is covered by the leaves that are shed by the trees and as these decay the land turns black.
- ✓ In the areas which are at a lower height the soil will be grey or red in colour.
- ✓ Beverage crops like tea and coffee, spices, other crops like wheat, maize, barley, paddy are also grown. The soil is found in limited area.

Marshy or Peaty soil

- ✓ This type of soil develops in humid regions due to the accumulation of biotic elements. During rainy season, this land is submerged under water and when the water recedes, paddy can be grown in it.
- ✓ This soil is deficient in phosphate and potash and is found in a limited area.
- ✓ This soil is found in Odisha, West Bengal, and coastal Tamil Nadu, Central area of Northern Bihar and in Almoda district of Uttrakhand.

7. SOIL EROSION

- ✓ Transportation of soil from one place to another by natural elements like wind and running water is called soil erosion.
- ✓ The top soil takes a long time to form and is useful for cultivation.
- ✓ Erosion degrades the soil and makes it less productive or unfit for cultivation.
- ✓ Soil erosion can take place due to human activities like overgrazing and mining also.

8. MEASURES TO PREVENT SOIL EROSION

Soil erosion degrades the soil and makes it unfit for cultivation so we must prevent it in the following ways:

- ✓ Control the grazing activity on the land.
- ✓ Plantation should be carried out in contour method in hilly regions.
- ✓ Plant trees in fallow land.
- ✓ Construct check dams where there are streams.
- ✓ Cultivate very deeply in the sloping field to reduce the speed of the water.

9. SOIL CONSERVATION

- ✓ Soil conservation means to prevent soil erosion and to maintain its quality.
- ✓ It is directly connected to retain the soil particles at their original place.
- ✓ Different methods are used at different places keeping in mind the type of erosion.
- ✓ If the soil is not conserved then there are chances of floods, which will increases the risk of loss of life and property. Thus soil conservation is necessary.
- ✓ The methods are to stop run off quota of water from sloping lands because it does not increase ground water.
- ✓ To undertake water harvesting in the terraced land of slopes so that ground level increases.

10. REMEDIES FOR SOIL CONSERVATION

Soil erosion destroys the soil and makes it unfit for cultivation. The following remedies should be followed for soil conservation:

- ✓ The roots of the trees hold the soil particles so afforestation should be done.
- ✓ Plant trees in the river valleys and on mountain slopes.
- ✓ Trees that can grow in sandy soil should be planted near the boundary of the deserts to stop the desert from advancing.
- ✓ The river floods should be controlled by diverting their flow in other rivers or in dry river beds. -Over grazing should be restricted to stop erosion of top soil.
- ✓ Methods like contour farming (across the slopes) and terraced farms should be implemented. -Humus contents should be added to the soil which has lost its fertility.

PRACTICE SHEET–1

1. What type of resources are minerals?
(A) Afforestation (B) Man-made (C) Non-renewable (D) Renewable

2. Minerals like coal are resource.
(A) Biotic (B) Abiotic (C) Individual (D) Collective

3. Minerals like iron ore are.
(A) Biotic (B) collective (C) Individual (D) Abiotic

4. Land, water and soil are resources.
(A) Biotic (B) Abiotic (C) Individual (D) Collective

5. Which of the following resources is renewable?
(A) Mineral Oil (B) Mineral Coal (C) Biogas (D) Iron ore

6. _____ forms the basis/backbone of economic strength and prosperity for a country
(A) Mineral and vegetation (B) Natural resources
(C) Manmade resources (D) Mineral resources

7. _____ is essential for development of natural resources.
(A) Technology (B) Human resource (C) Machinery (D) Books

8. Which factor is responsible for the unintelligent use of resources?
(A) Poverty (B) Pressure of increasing population
(C) Unemployment (D) Pollution

9. _____ are the main characteristics of resources.
(A) Utility, unlimited quantity, help in creation of goods or services –
(B) Utility, limited quantity, capability to work
(C) Unlimited quantity
(D) None of the above

10. Utility of a resource changes with the advancement in _____.
(A) Human resource (B) Machinery
(C) Science and technology (D) Industries

11. Natural elements useful to human beings are called.
(A) Development (B) Resources (C) Planning (D) Product

12. The process of transformation of things available in our environment involves an interdependent relationship among nature, and _____.
(A) Technology, institutions (B) Technology, human beings
(C) Human beings, institutions (D) Resources, technology

13. ____ interacts with nature through ____ and create institutions to accelerate the economic development.
(A) Technology, human beings (B) Human beings, technology
(C) Resources, technology (D) Technology, resources

14. How can the resources be classified on the basis of their exhaustibility?
(A) Biotic and Abiotic (B) Renewable and non-renewable
(C) Individual and community (D) Universal and solitary

15. How can the resources be classified on the basis of their ownership?
(A) Biotic and Abiotic
(B) Renewable and non-renewable
(C) Individual, community, national & international
(D) Universal and generally available

ANSWERSHEET														
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11**	**12**	**13**	**14**	**15**
C	A	D	B	C	B	A	B	B	C	B	A	B	B	C

PRACTICE SHEET – 2

1. How can the resources be classified on the basis of their distribution?
(A) Biotic and Abiotic (B) Renewable and non-renewable
(C) Individual and community (D) Universal, Rare and Solitary

2. What are resources composed of non-living things called?
(A) Biotic (B) Abiotic (C) Renewable (D) International

3. What are resources which can be renewed or reproduced by physical, chemical or mechanical processes called?
(A) Biotic (B) Abiotic (C) Renewable (D) International

4. What are resources which occur over a very long geological time called?
(A) Biotic (B) Abiotic (C) Non-renewable (D) International

5. What are resources which have private ownership called?
(A) International (B) Renewable (C) Abiotic (D) Individual

6. What are resources which belong to the country or region called?
(A) Biotic (B) Abiotic (C) National (D) International

7. Which one of the following statements is true about the term resources?
(A) Resources are free gifts of nature.
(B) They are useful to satisfy human wants.
(C) All those things which are found in nature.
(D) Things which cannot be used to fulfill our needs.

8. Which one of the following type of resources is iron ore?
(A) Renewable (B) Biotic (C) Rare (D) Non-renewable

9. Plays a very significant role in the process of resource development and management.
(A) Machines (B) Humans (C) Energy resources (D) Economists

10. Oxygen and Nitrogen are resources.
(A) Generally available (B) Universal (C) Rare (D) Solitary

11. Land and water are types of resources.
(A) Generally available (B) Universal (C) Rare (D) Solitary

12. Coal and Mineral oil are types of resources.
(A) Generally available (B) Universal (C) Rare (D) Solitary

13. Cryolite is type of resource.
(A) Generally available (B) Universal (C) Rare (D) Solitary

14. The resource Cryolite is only found in.
(A) Greenland (B) Iceland (C) New Zealand (D) Newfoundland

15. An Army is a type of resource.
(A) Individual (B) Community (C) National (D) Global

					ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11**	**12**	**13**	**14**	**15**
D	B	C	C	D	C	B	D	B	B	A	C	D	A	C

2 – FORESTS AND WILDLIFE RESOURCE

1. FORESTS AND THEIR CLASSIFICATION

Natural vegetation that has grown without human help is called forest or virgin vegetation. It includes trees, shrubs and grass. Now such vegetation is only found in the Himalayas, Sunderban and remote areas of Thar Desert.

(1) According to Administration

(a) Reserved Forests: These forests are directly under the control of the government. In these forests there is restriction on lumbering, collection of woods or pasturing.

(b) Protected Forests: These forests are looked after by the government. Local people are permitted to collect wood and graze their animals without causing any harm to the trees.

(c) Unclassified Forests: Such forests are still not classified and there is no restriction on tree felling or animal grazing.

(2) Classification of forests according to ownership

On the basis of ownership, administration and management the forests of India are classified into three types:

(a) State Forest: The Central or State Governments control such forests. Most of the forests of the country fall under this category.

(b) Community Forest: The local self- government institutions like gram panchayat, district panchayat, municipalities and municipal corporations have control over such forests.

(c) Private Forest: These forests are owned by individuals. Most of these forests are found in Odisha, Meghalaya, Punjab and Himachal Pradesh. Some of these are in a haphazard condition and some are totally barren.

2. DEFORESTATION AND ITS IMPACT

- ✓ Destruction of forests is called deforestation. It is a global problem. Though trees can be destroyed by nature, human interference causes more harm to forests. The impact of deforestation is widespread.
- ✓ Air pollution increases with increase of carbon - dioxide in the atmosphere.
- ✓ Green-house effect increases.
- ✓ There is decrease in rainfall.
- ✓ Soil erosion increases and the fertility of the soil decreases.
- ✓ Living organisms lose their habitat and become homeless.
- ✓ Animals enter human settlements in search of food and water. This can lead to carnivorous animals becoming man or cattle hunters.

3. REMEDIES FOR FOREST CONSERVATION

- ✓ A substitute/option should be found for wood so that trees are not cut.
- ✓ If trees need to be cut for development work, then such new trees should be grown -There should be a ban on cutting trees which are not fully grown.
- ✓ The industries which use raw material from the forests should do afforestation.
- ✓ No damage should be caused to forest under the name of eco-tourism.
- ✓ Awareness about forest protection should be done among the local people.
- ✓ School and College syllabus should educate students about the importance of forests and the need for conserving them.
- ✓ Social forestry for fodder and fuel food and Agro forestry should be developed.
- ✓ Instead of firewood, solar energy and natural/bio gas should be used.

- ✓ Pilgrimage places in forests area attract a lot of pilgrims during fairs and festival times. The area gets littered with thrash, which should be properly disposed so that the forest land is not polluted.
- ✓ There should be proper pasture areas fixed for cattle grazing.

4. WILDLIFE DIVERSITY

- ✓ India has a huge diversity of wildlife due to its climate and geographical features.
- ✓ There are about 15 lakh species of animals and birds in the world. Out of these, 81251 species are found in India.
- ✓ India stands 12th in the world in terms of bio-diversity.
- ✓ African stripped hyena (jarakh) and deer (chinkara); European wolf and wild goats, Kashmiri deer, South-East Asian elephants, gibbons (monkeys) are seen in India.
- ✓ The various animals that are seen in India are black bears, one horned rhino, deer and snakes. The different types of birds found are peacock, Great Indian bustard (ghorad), hawk, kingfisher, flamingo and cranes.
- ✓ The snow leopard and the red panda are found in the higher altitude regions of the Himalayas.
- ✓ India is the only country where both tiger and lion are in their natural habitats.
- ✓ During winter many migratory birds come to the Keoladev National Park, Bharatpur Sanctuary of Rajasthan and to NalSarovar in Gujarat.
- ✓ Sea turtles come to lay eggs along the coasts of Odisha.
- ✓ Pythons, cobras and various snakes are found in the southern rain forests.

5. WILDLIFE ON THE VERGE OF DESTRUCTION IN INDIA

- ✓ Many species of wildlife in India have become extinct or are endangered.
- ✓ The Cheetah is totally extinct in India.
- ✓ Tigers which were found in Gujarat forests near Idar, Ambaji and Danta are totally extinct. -Birds like vultures, pink necked ducks, cranes and owls are on the verge of extinction.
- ✓ The Chilotro (Indian grey hornbill) which were in large number in Arunachal Pradesh and the North-east are now hardly seen.
- ✓ The survival of the gharials (type of crocodiles) found in the fresh waters and the Gangetic Dolphins is in danger.
- ✓ The number of sea turtles coming to the coasts of Odisha and Gujarat for laying eggs is decreasing.
- ✓ The otters (jalbiladi) which were found in large numbers in the river waters of Narmada, Tapi, Mahi and Sabarmati are almost extinct.

6. REASONS FOR THE DESTRUCTION OF WILDLIFE

- ✓ People interfere in the forest grasslands and in waterlogged area and this endangers the natural habitat of the wild animals.
- ✓ Deforestation has created an imbalance in nature and this has taken away the home of the wild animals and their number has reduced.
- ✓ Hunting of wild animals for their hair, skin (hide), bones, horns or nails has reduced their number.
- ✓ Human greed has led to exploitation of forest land. In the name of development, roads, multipurpose projects, mines, expansion of new settlements or cities displace the wild animals. -There is pressure on forest land for grass, grazing cattle and fuel wood.
- ✓ Many species are destroyed in forest fires. If this happens during the hatching period a large number of wild animals are totally endangered.
- ✓ As animals lose their natural habitat, the wild animals enter into human habitat and are killed. – Many animals are killed for making certain medicines and perfumes. This has brought many species on the verge of extinction.

7. MEASURES FOR PRESERVATION OF WILDLIFE

- ✓ People should stop considering forests as only a resource for earning. It needs to be preserved to save the habitat of wildlife.
- ✓ Maintain a balance of number between the herbivores and the carnivores in the forests. – Conserve water sources in the forest.
- ✓ Restrict grazing activity in the forest.
- ✓ Ban hunting and take strict steps to punish poaching.
- ✓ Illegal mining should be stopped in the forests.
- ✓ Animals should not be disturbed in their procreative (reproductive) period.
- ✓ Programmes should be undertaken to create awareness about wildlife among the people. – Activities like fishing done in the forest water bodies, collecting forest products and tourism in forests should be done without any ill effect on the life of the wild animals of the area.
- ✓ The Forest department should remain active to protect and preserve the species. People need to compel them to bring out the best results.

8. WILDLIFE PROTECTION SCHEMES

Some schemes are implemented in India to protect the wild life. Under this scheme, some projects are started for those animal species which are in danger or which are likely to be extinct in the near future.

Tiger Project

- ✓ In the beginning of the 20th century there were more than 40,000 tigers in India.
- ✓ However, due to unrestricted and illegal hunting and deforestation the tigers are in danger of extinction.
- ✓ To protect the tiger from extinction, the tiger project was started in 1971.
- ✓ Steps were taken to keep their natural habitat protected and to maintain ecological balance at the national level.
- ✓ The project has been implemented in about 44 regions.

Elephant Project:

- ✓ The Elephant project was started in 1992.
- ✓ Its main objective was to provide the elephants protection in their natural habitats and along their migratory corridors.
- ✓ Today there are about 26 protection zones for elephants in the forest.
- ✓ This Project also works for the maintenance of domesticated elephants.

Rhino Project:

- ✓ This project was created for the protection of One Horned Rhino.
- ✓ In India most of the rhinos are found in Assam State and some in the Sundarban of West Bengal.
- ✓ According to the strategy of 'Rhino Vision 2020', it is targeted to increase the number of rhinos to 3000.

Gharial (Crocodile) Project

- ✓ This species of crocodiles is found in the fresh waters.
- ✓ They are on the verge of extinction since 1970.
- ✓ The Government of India has taken timely steps to start this project.

Vulture Project

- ✓ The vulture acts as a cleanliness worker of nature.
- ✓ It eats the meat of dead animals.
- ✓ There are 9 sub-species of vultures in India.
- ✓ Due to the unusual decrease in its number, this project was started in 2004.

Snow Leopard Project:

- ✓ The Snow Leopard is found at an altitude of about 3000 metres in the Himalayas.
- ✓ This project was started in 2000 with the purpose to increase awareness about the species among the local people to protect it.

Other projects

- ✓ The other projects which are operational are Kashmiri Hangool Project, Red Panda Project, and ManipurThamil Project for the deer and Ganga-Dolphin project.

9. SANCTUARIES, NATIONAL PARKS AND BIO-RESERVES

Sanctuary

- ✓ Human activities are permitted within certain limits.
- ✓ Domestic animals are allowed to graze with permission from the authorities.
- ✓ It is established for the protection of some species.
- ✓ Perriyar, Chandraprabha, Eturnagaram etc. are famous sanctuaries.

National Park

- ✓ Compared to the sanctuary, this is a more protected zone.
- ✓ More than one ecosystem and species are included here.
- ✓ There is complete ban on animal grazing.
- ✓ It is established through the coordination of State and Central Government.
- ✓ Kaziranga, Corbett, Velavadar, Marine National Park, Gir, Dachigam etc. are important National Parks.

Bio-reserves

- ✓ They are formed according to International norms.
- ✓ Their purpose is to protect the physical and cultural diversity of any region.
- ✓ Besides all vegetation, insects and land of that area, the life style of the people living there is also protected.
- ✓ Special arrangements are created for research and training about bio-reserves.
- ✓ In such proclaimed area, all external human movements are totally restricted.

- ✓ The average area of such zone is larger than 5000 sq. kilometers.
- ✓ Nilgiri, Gulf of Mannar, Great Nicobar, Sundarban, and Panchmadhi are important bio-reserves of the nation.
- ✓ The Rann of Kutch of Gujarat was declared as a bio-reserve in 2008.

	Bio-Reserves	Nationalpark	Sanctuary
India	18	103	531
Gujarat	1	4	23

10. THINGS TO KNOW

Leopard

- ✓ Leopard belongs to cat family and is smaller compared to lion and tiger.
- ✓ It is found everywhere in India. It is also found in dark black colour.
- ✓ It is found in large number in the forests of Gujarat.
- ✓ It often comes to human settlements. People unknowingly call it a cheetah.

Cheetah

- ✓ It is totally extinct from the forests in India.
- ✓ Today, it is found in Africa in its natural habitat.
- ✓ In India, it is only found in a captive state in zoos.

One Horned Rhino

- ✓ It is seen in the marshy regions of Brahmaputra and Sundarban.
- ✓ It is herbivorous.
- ✓ It is hunted for preparing medicine from its horns.
- ✓ However due to attempts made for its protection, the numbers have increased.

Desert Cat (Henotaro)

- ✓ This animal lives in the arid and semi-arid regions like deserts, alkaline forests and grasslands.
- ✓ It is found in the Greater and Smaller Rann of Kutch of Gujarat.
- ✓ It is also found in the Banni and Narayan Sarovar sanctuaries.
- ✓ It is slightly taller than a fox, it has a fleshy broad mouth and tall ears.
- ✓ It hunts smaller birds and animals.
- ✓ Its existence can be known by its footprints.

Red panda

- ✓ The Red Panda is found in the cold forests of eastern Himalayas.
- ✓ His food is bamboo sprouts, eggs, small birds, insects etc.
- ✓ It is less active during the day.
- ✓ Besides India, it is also found in China, Nepal, Bhutan, Myanmar.

Dugang

- ✓ This is an aquatic animal.
- ✓ It is seen in very small numbers along the western sea coast of India.
- ✓ It is also found along the sea coast and northern coast of Australia.

- ✓ It eats sea grass and vegetation but sometimes it also eats aquatic animals.
- ✓ It is hunted for its meat and fat.
- ✓ Earlier dugangs were found along the Gujarat coast, especially along Saurashtra coast, but today it is rarely seen.

Ganges River Dolphin (Platanista Gangetica)

- ✓ The Ganges River Dolphin is found in river Brahmaputra and Ganga.
- ✓ A few are also left in the Chambal River.
- ✓ It is a fresh water species and it lives where the river water is deep and calm.
- ✓ It comes to the surface very often to breathe making Suu-Suu like sound. so it is also known by other names like Sauns, Susu or Suis.
- ✓ It is also found in the rivers of our neighbours Nepal and Bangladesh.
- ✓ At present, the existence of Ganga River Dolphin is in danger due to polluted water, sedimentation of industrial waste and navigation in the rivers.

PRACTICE SHEET–1

1. According to the Government, which are the types of forests?
(A) Reserved Forests (B) Protected Forests
(C) Unclassified Forests (D) All the above

2. In which forest, there is no restriction on tree felling or animal grazing?
(A) Unclassified Forests (B) Reserved Forests
(C) Protected Forests (D) Community Forests

3. In which Forests are the local people permitted to collect wood and graze their cattle?
(A) Reserved Forests (B) Protected Forests
(C) Unclassified Forest (D) Community Forests

4. In which Forests, there is no restriction on lumbering?
(A) Reserved Forests (B) Protected Forests
(C) Unclassified Forests (D) All the above

5. The Central or State Government, controls forest.
(A) State Forest (B) Community Forest
(C) Private Forest (D) Protected Forest

6. The Local Self Government institutions have control over which type of forests?
(A) Private Forest (B) Protected Forest (C) State Forest (D) Community Forest

7. Forest which are looked after by the Government directly are
(A) Protected forest (B) Reserved forest
(C) Unclassified forest (D) None of these

8. India stands ____ in the world in terms of bio diversity
(A) 10 (B) 11 (C) 12 (D) 15

9. Which is the only country in the world where tiger and lion are seen moving in their natural abodes.
(A) Russia (B) China (C) Canada (D) India

10. Migratory birds from distant places come into the watershed area of Keoladev National Park, Bharatpur and Nal Sarovar to spend _____
(A) Summer (B) Rainy Season (C) Winter (D) Both (a) and (b)

11. The River Dolphin found in river _____ and Ganga
(A) Sabarmati (B) Mahanadi (C) Brahmaputra (D) Godavari

12. Project Tiger was started in the year
(A) 1965 (B) 1975 (C) 1971 (D) 1977

13. Project Elephant was started in the year _____
(A) 1995 (B) 1996 (C) 1992 (D) 1985

14. _____ is totally extinct from the forest in India
(A) Leopard (B) Cheetah (C) Lion (D) Tiger

15. In India most of rhinos are found in _____
(A) Arunachal Pradesh (B) Assam
(C) Orissa (D) West Bengal

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11	12	13	14	15
D	D	B	C	A	D	B	C	D	C	C	C	C	B	B

PRACTICE SHEET–2

1. How many species of animals and birds are there in the world
(A) Twelve Lakh (B) Twenty one Lakh (C) Seven Lakh (D) Fifteen Lakh

2. Which of the following is the oldest national park in India
(A) Kaziranga National Park (B) Corbett National Park
(C) Velavdar National Park (D) Gir National Park

3. The Rann of Kutch of Gujarat was declared as a _____ in 2008
(A) National Park (B) Sanctuary (C) Bio Reserve (D) All the above

4. Where in India do flamingos migrate to nest in large numbers?
(A) Thar (B) Rann of Kachchh (C) Coastal areas (D) Himalaya

5. Which of the following places Royal Bengal Tiger found?
(A) Mahanadi Delta (B) Kaveri Delta (C) Godavari Delta (D) Sunderban Delta

6. In which of the following state is the Simplipal bio-reserve located?
(A) Punjab (B) Delhi (C) Orissa (D) West Bengal

7. Which is the natural habitat of the Indian lion?
(A) Sunderban delta in Bengal (B) Gir forest in Gujarat
(C) Thorn forest in Rajasthan (D) Deciduous forest in Madhya Pradesh

8. In which of the following states is Dachigam wildlife sanctuary located?
(A) Jammu and Kashmir (B) Punjab
(C) Himachal Pradesh (D) Uttrakhand

9. Snow Leopard is found at an altitude of about _____ meters in Himalayas.
(A) 2000 (B) 3000 (C) 1000 (D) 2500

10. _____ is the cleanliness worker of the nature
(A) Elephant (B) Vulture (C) Snow leopard (D) Tiger Project

11. The bird sanctuary of Nal Sarovar is located in _____
(A) Madhya Pradesh (B) Chhattisgarh (C) Maharashtra (D) Gujarat

12. There are _____Bio-reserves,_____ National Park and _____ Sanctuaries in India
(A) 18,110,350 (B) 16,115,451 (C) 18,103,531 (D) 18,301,531

3 – INDIA AGRICULTURE

IMPORTANCE OF AGRICULTURE

– India is an agrarian country.
– Agriculture is the main occupation/economic activity in India.
– It is an important resource of India.
– India ranks second in the world in agrarian production.
– The Indian economy is mainly dependent on agriculture.
– About 60% of the people are directly or indirectly engaged in agriculture.
– About 50% of the labour force works in the field of agriculture. (2014)
– It contributes to about 17% to the National Income (GDP) of the country. (2014)
– About 18% of the exports are crops and other farm products (1990-1999).
– Paddy, wheat, oil seeds, cotton, jute, sugarcane, tobacco, potatoes etc. are major agricultural crops of India which bring good foreign exchange through their export.
– Industries like cotton textile, sugar, paper, edible oil, food processing get their raw material from agricultural products only.
– Agriculture provides food to the people.

FAVOURABLE AND UNFAVOURABLE FACTORS AFFECTING AGRICULTURE

– The favourable factors in India for agriculture are fertile plains, favourable climate, irrigation facilities, skilled and hard-working farmers.
– The unfavourable factors that have not allowed agriculture to develop are poverty and illiteracy of farmers, inadequate irrigation facilities, irregular rains, over population, small farms and less mechanisation.

TYPES OF FARMING

The types of farming depend on the socio-economic condition of the farmers, the policies of the government, irrigation methods, economic returns and production.

(a) Subsistence Farming

– This type of farming is done for survival so it is called subsistence farming.
– It is practised by poor farmers who have small farms holdings.
– They cannot afford costly seeds, fertilizers and pesticides.
– They use traditional tools and they lack facilities like electricity and irrigation so their productivity is low.

(b) Dry farming

– This farming is practiced in areas with less rainfall and inadequate irrigation facilities. -Conservation of moisture is done in the monsoon and one crop is taken.
– Crops like jowar, millet and pulses which require less water are grown.
– In Gujarat wheat and gram are grown in the Bhaliya region.

(c) Wet-land farming

– This farming is practised in areas with heavy rainfall and having irrigation facilities.
– If the rains are not adequate, more than one crop is taken with the help of irrigation.
– The main crops grown in such farming are rice, sugarcane, cotton, wheat and vegetables.

(d) Shifting (Jhoom) Cultivation:

– In this farming forest land is cleared and burnt then farming is done.
– Crops are grown for two to three years.
– When fertility of soil reduces the land is abandoned and the farmers move to a new area. Cereals or vegetables are grown in this type of agriculture. The yield per hectare is low.

(e) Plantation Agriculture

– This is a special type of agriculture.
– It requires a lot of capital investment and needs good managerial ability.
– It needs technical know-how, sophisticated machinery, fertilizers, irrigation and transport facilities.
– Rubber, tea, coffee, cocoa, coconuts, apples, mangoes, oranges, grapes, dates are grown.

(f) Intensive Farming

– This type of farming is done through mechanization.
– It is done with the help of adequate irrigation, chemical fertilizers, insecticides and other mechanical equipment.
– The per hectare production has increased and the area under this farming has increased.
– This farming gives more importance to economic returns so it is also called 'Commercial farming'.

METHODS OF FARMING

(a) Organic farming

– This method avoids the use of insecticides and chemical fertilisers which are harmful and reduce the fertility of the soil.
– For maintaining fertility cow dung, earthworm and compost fertilizers are used.
– To protect the crops from pests, cow urine, neem solvents and buttermilk are used.
– The crops are nutritious (minerals and vitamins) and have a natural taste, sweetness and fragrance.
– The organic products have a good demand so farmers get a good return.

(b) Sustainable farming

– In order to see that the soil fertility is retained for a long time, care is taken for crop rotation, use of chemical fertilizers only when necessary, use of biotic controls for insects and harvests, water conservation etc.

(c) Mixed Farming

– Here cattle rearing, poultry, sericulture and fishery etc. are also carried out along with farming.

DIVISION OF CROPS ACCORDING TO THE CLIMATIC CONDITIONS

(a) Kharif Crops

– Crops which are taken during rainy season are called kharif crops.
– Time for these crops is from July-June to October-November.
– Paddy, maize, jowar, millet, cotton, sesame, groundnut, mung and math are kharif crops.

(b) Rabi Crops

– Crops which are taken during winter are called rabi crops.
– Time for these crops is from October-November to March-April.
– Wheat, gram, barley, mustard, linseed etc. are rabi crops.

(c) Zaid Crop

– Crops which are grown during summer are called zaid crops.
– Time for these crops is from March to June.
– Paddy, maize, groundnut, sesame, millet, watermelon, cucumber and musk melon are grown.

MAJOR AGRICULTURAL CROPS

Due to the diversities in geographical conditions, climate, variety of land, the amount of rainfall etc. different crops are grown in different parts of India.

MAJOR AGRICULTURAL PRODUCTS OF INDIA

Food Grains	Pulses	Oil seeds	Beverages	Cash crops	Condiments	Fruits	Vegetables
Paddy Wheat Jowar Millet Maize	Tur Mung Gram Peas Bean Math Udad Lentil	Groundnut Sesame Soybean Castor Mustard Sunflower Coconut Linseed	Tea Coffee Coca	Cotton Sugarcane Jute Tobacco Rubber	Cumin seed Fennel Isabgul Coriander Fenugreek Caraway Black pepper Garlic	Mango Banana Chikoo Papaya Grapes Jujube Apple Guava	Potato Brinjal Onion Bottle gourd Ridge gourd Lady's finger Cabbage Cauliflower Leafy Vegetable

MAJOR CROPS

– Food grains are cultivated in about 75% of the total sown area.
– About 50% of the production of agricultural crops is that of food grains.

(a) Rice

Soil: Fertile alluvial soil. **Rainfall:** 100 cm

Temperature: Hot and humid climate with minimum temperature $20°C$..

Places: (WATOB) West Bengal, Andhra Pradesh, Telangana, Tamilnadu, Odisha and Bihar.

Gujarat: (VATPAKS) Valsad, Ahmedabad, Tapi, Panchmahal, Anand, Kheda and Surat districts.

States growing paddy with irrigation-(HUP): Haryana, Uttar Pradesh and Punjab.

Particulars:

– Rice is a major agricultural crop.
– It is grown in about one-fourth of the total cropped area.
– India is the second largest producer of rice after China.
– It is grown in the Torrid Zone.
– India exports rice to United States and United Arab Emirates.
– Rice is a Kharif crop but if there are irrigation facilities it can be grown even in summer.

(b) Wheat

Soil: Black, fertile and loamy **Temperature:** 20 to $30°C$

Rainfall: 75 cm and more.

Wheat cannot be grown in the area receiving more than 100 cms rainfall.

Places: (PGHRUMB) Punjab, Gujarat, Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh, Maharashtra and West Bengal.

Particulars:

– Wheat is the second most important crop after paddy.
– It is the staple food of the people of North and West.
– It is a crop of the Temperate Zone.
– It is grown on about one-third of the cropped area of the country.
– Mechanization has led to less labour for wheat cultivation.
– After the Green Revolution, the wheat production is almost double.
– The highest per hectare production of wheat is in Punjab, Haryana and Western Uttar Pradesh because of irrigational facilities.

– These states contribute about two third of the national production.
– Punjab is also called the 'Wheat Bowl' of India.
– In Gujarat, the Bhal region produces the best quality wheat called 'Bhaliya Wheat'.
– It is also grown in Mehsana, Rajkot, Junagadh and Kheda districts.

Wheat is called the king of food grains

– It is more nutritious than other food-grains.
– Many items can be made out of it like roti, paratha, biscuits, bread, cakes.

(c) Jowar

Soil: Black and Loamy soil **Temperature:** $25°$ to $30°C$.

Rainfall: 50 cms. It can also grow in areas with less rainfall.

Places: (KMGAT) Karnataka, Maharashtra, Gujarat, Andhra Pradesh and Tamilnadu.

Gujarat: Surat and Tapi districts

Particulars:

– It is the third most important food crop in terms of area and production.
– It is a coarse grain.
– It can be grown in dry and areas of less rainfall also.
– It is both a Kharif and Rabi crop.

(d) Millet (Bajra)

Soil: It can be grown in sandy and less fertile soil.

Rainfall: 40 to 50 cm **Temperature:** $25° - 30°C$

Places: (GRUM) Gujarat, Uttar Pradesh, Maharashtra and Rajasthan grows more millet.

Gujarat: Banaskantha district leads in the production of millet. It is a coarse grain.

(e) Maize

Soil: black hard, rocky and well-drained soil on hill slopes.

Rainfall: 50 to 100 cm **Temperature:** $21°$ to $27°C$

Places: (BRUMPAK) Bihar, Rajasthan, Uttar Pradesh, Madhya Pradesh, Punjab, Andhra Pradesh, Jammu and Kashmir and Karnataka

Gujarat: (DAPS) Dahod, Aravalli, Panchmahal and Sabarkantha districts

Particulars:

– It is the main/staple food of the people of the hilly areas.
– Maize contains starch, oil protein and bio-fuel so it is also used in industrial productions.
– It is increasingly used as animal fodder, making popcorn and for edible oil.

(f) Pulses

Places:

– Pulses are grown in all states except where rainfall is more.
– Major pulse production states are Madhya Pradesh, Rajasthan, Uttar Pradesh, Maharashtra, Orissa, Bihar and Andhra Pradesh.
– In Gujarat, tuver is sown more in Vadodara district, Mung and Math in Kutch district and Udad in Patan district.

Particulars:

– Pulses are main source of protein for vegetarian people.
– Tuver, mung, gram, peas, beans, math, udad are pulses.
– Tuver, udad, mung, math are kharif crop.
– Gram, peas and lentil (masur) are rabi crops.
– Growing pulses helps to give back nitrogen to the soil and is sown between crops.

(g) Ragi

Particulars:

– Ragi (Nagli) is a unique grass food-crop sown in Gujarat.
– It is the staple food of the Adivasi people in the hilly region.
– The per hectare production of ragi is maximum in the country among all grass food-crops.
– It is also called finger millet or African millet in English and is known as Bavta in Gujarati.
– It is an extremely nutritious grass food- crop.
– There is more of protein, minerals and vitamins in its grain.
– As it has more fibres it is very advantageous for the patients of diabetes and cardiac patients.
– It has more calcium and iron so it is useful for removing malnutrition and for baby food.
– The Adivasi farmers make rotla (chapatti) from its flour.
– Items like biscuits, chocolates, toast, wafers are also prepared from its flour.

OIL SEEDS

– Groundnut, sesame (til), soya bean, castor, mustard, sunflower are oil seeds.
– They hold an important position in the Indian meal.
– After edible oil is extracted from the oil seeds, the remains are used to make oil- cakes as fodder for animals and as biotic manure.

(a) Groundnut

Soil: It requires black soil, loamy and sandy soil which will not retain water.

Temperature: It requires $20°$ to $25°C$

Rainfall: 50 - 70 cm. If there is irrigation facility it can also be sown in summer.

Particulars:

– It is an important oil seed.
– India ranks second after China in the world in groundnut production.
– Groundnut oil is used as edible oil in Gujarat.

Places:

– (GMAT) Gujarat, Maharashtra, Andhra Pradesh and Tamilnadu are major producers.
– Gujarat leads the country in groundnut production.
– In Gujarat it grows in (JGRABS) Junagadh, Gir, Rajkot, Amreli, Bhavnagar and Somnath districts.

(b) Sesame (til)

Particulars:

– In North India it is a Kharif crop while in South India it is a Rabi crop and occasionally a Zaid crop. Almost all the states grow sesame.
– It has more content of oil than other oil seeds.
– It is used as edible oil in almost all parts of the world.
– India exports maximum sesame in the world.

Places:

– Major producers of til are (GUMKTB) Gujarat, Madhya Pradesh, Karnataka, Tamilnadu, and West Bengal.
– Gujarat ranks first in India in term of sesame production and the area sown.
– Banaskantha grows maximum sesame.

(c) Mustard

Particulars:

– This is a Rabi crop in North India.
– The mustard seeds are used for medicine and as edible oil.

Places:

– (GRUMB) Gujarat, Rajasthan, Uttar Pradesh, Madhya Pradesh and West Bengal are major producers of mustard.

(d) Coconut

Soil: It is a plantation crop and it grows in coastal saline soil.

Temperature: It needs a hot and humid climate.

Particulars:

– In Gujarat, coconut is grown in coastal regions.
– A special type of coconut tree which is shorter and giving more yield is developed.
– In South India, coconut oil is extracted from the kernel.
– Coconut water is useful as a healthy drink.

Places:

– These plantations are found in (KAT) Karnataka, Kerala, Andaman Nicobar and Tamilnadu.

(e) Castor

Particulars:

– Castor is also known as Divela locally.
– It is a Kharif as well as Rabi crop.
– The oil from cotton seeds, sunflower, paddy and maize also are used increasingly as edible oils.

Places:

– India is the largest producer of castor seeds - 64%.
– China and Brazil come next chronologically.
– About 80% of India's production comes from Gujarat.
– The other producers are Andhra Pradesh and Rajasthan.
– In Gujarat it is grown in the districts of Banaskantha, Patan, Sabarkantha, Rajkot, Junagadh and Amreli.

HOT BEVERAGES

(a) Tea

Soil: Sloping soil with iron content where water flows down.

Temperature: $20°$ to $30°C$

Rainfall: 200 cm. Water should not remain stagnant at the roots. It will damage the crop.

Places: (TKUWA) Tamilnadu, Karnataka, Uttarakhand, West Bengal, Assam and Uttar Pradesh. Assam and West Bengal produce about 75% tea of the nation.

Particulars:

– India leads the world in total area under tea plantations and production.
– Sri Lanka, China and India are leading tea exporters.
– It is a plant of Tropical as well Temperate zone.
– The tender tea leaves are powdered and processed to be used for drinking tea.
– The tea leaves are very skilfully plucked from the plants.

(b) Coffee

Soil: Sloping soil with water running down.

Rainfall: 150 to 200 cm **Temperature:** $15°$ to $28°C$

Places: (KKT) Karnataka, Kerala and Tamilnadu.

Coorg region of Karnataka produces maximum coffee.

Particulars:

– Coffee plants are reared on hill slopes under the shade of tree so that the sun's heat does not burn the plant.
– Coffee seeds are extracted out of the nuts, grinded and then used as a drink.

(c) Cocoa:

Particulars:

– Cocoa is prepared from the seeds of the cocoa fruit.
– It is a beverage crop.
– Chocolate is prepared from cocoa.
– It requires hot and humid climate and a lot of rainfall.

Places:

– African countries are major producers of cocoa.
– In India it is produced in (KAT) Kerala, Karnataka, Andhra Pradesh and Tamilnadu.

CASH CROPS

(a) Cotton

Soil: It requires black lava soil with mineral contents which can retain moisture for a long time.

Rainfall: 30-70 cm. Frost damages the crop.

Temperature: Hot and humid climate 20° to 35°C

Places: (GHRAMPTO) Gujarat, Haryana, Rajasthan, Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu and Orissa

Gujarat: Gujarat stands first in India for cotton production.

Cotton is grown in Surendranagar, Sabarkantha, Surat, Panchmahal, Amreli, Ahmedabad, Rajkot, Vadodara, Botad, Bharuch, Bhavnagar, Mehsana and Patan districts.

Particulars:

– It is a Kharif cash crop.
– It requires 6-8 months to grow.
– It is called 'White gold'.
– The BT cotton seeds have helped to increase production.
– India is the second largest producer of cotton crop after China.

(b) Sugarcane

Temperature: 21 to $27°C$

Soil: Black fertile alluvial lava soil of flood plains and delta is most suitable for sugarcane.

Rainfall: 75 to 100 cm. In regions of less rainfall it is grown with the help of irrigation.

Places: (PHUKMAGB) Punjab, Haryana, Uttar Pradesh, Karnataka, Maharashtra, Andhra Pradesh, Gujarat and Bihar.

– Uttar Pradesh is at the top in area sown, but Maharashtra leads in the production.
– In Gujarat, production of sugarcane is done the most in South Gujarat and Saurashtra.

Particulars:

– In India, area under sugarcane cultivation is more than other country in the world.
– In terms of production, India is second in the world after Brazil.
– Sugar, jaggery, unrefined sugar (Khandsari) and ethanol are prepared from sugarcane.

(c) Jute

Soil: Alluvial deltic soil

Rainfall: More than 100 cm **Temperature:** 30 to $40°C$

Places: (BUOA) West Bengal, Bihar, Uttar Pradesh, Orissa, Assam.

Particulars:

– The jute fibre is called 'Golden Fibre'.
– India has a strong competition with cheap labourers of Bangladesh in jute industry.
– The delta of the river Ganga in West Bengal produces the maximum jute in India.
– Gunny bags, mattresses, ropes, bags, slippers and handicraft articles are made from it.

(d) Tobacco

Rainfall: 100 cm **Temperature:** $20°C$

Soil: Sand loamy soil. The quality of tobacco depends on the type of soil than the climate.

Places:

– Major countries in the world which grow and export tobacco are China, Brazil, India and USA. -In India it is grown in (KUGA) Karnataka, Uttar Pradesh, Gujarat, and Andhra Pradesh.

Gujarat:

– It is grown in the Charotar region of Anand and Kheda.
– It is also grown in Mehsana, Vadodara, Panchmahal – About 80% of bidi of tobacco in India is produced in Gujarat.

Particulars:

– One-fifth part of the total production of the country is exported mostly to UK and Russia.
– Consuming tobacco is injurious to health so there is a ban on its use.
– Sikkim is the first state to ban tobacco-gutkha.

(e) Rubber

Rainfall: Heavy rainfall

Temperature: Hot and humid climate

Places: (KAT) Kerala, Karnataka, Assam, Tamilnadu and Tripura.

Particulars:

– Rubber is prepared out of the latex oozing out of the rubber trees.
– Acetic acid is mixed with it.
– It is used for manufacturing industrial products like tyres and tubes.
– Malaysia ranks first in the world in rubber production.
– India is the fifth major rubber producing country of the world.

(f) Condiments (masalas) and Spices

– Gujarat ranks first in the production of cumin seed (jeera), fennel seed (variali) and selium husk (isabgul) in the world.
– Besides this, Indian leads in the production and export of dried coriander, fenugreek, mustard, dil (Suva) and caraway (ajwain).
– India contributes about 35% in the total world production of condiments (masalas).
– Indian black pepper, cinnamon and cloves are in huge demand in the World also.
– India produces many medicinal herbs like ashwagandha, tulsi, aloe vera, ashoka, etc.
– Mint, palmroza, lemon grass are flavouring plants.

(g) Fruits and Flowers

In fruit production, India ranks second after China.

– **Fruits** like banana, mango, apple, grape, pears and orange are grown in India.
– **Bananas** are grown in Tamilnadu, Gujarat and Maharashtra.
– **Apples** are grown in Jammu-Kashmir, Himachal Pradesh.
– **Grapes** are in Uttarakhand, Maharashtra, Himachal Pradesh, Jammu-Kashmir, Punjab, Tamilnadu and Andhra Pradesh.
– As the grapes production is less than its demand it is imported from Afghanistan, Pakistan and Australia.

Flowers like rose, jasmine, marigolds are cultivated.

(h) Things to know

- With the increasing cultivation for cash crops, there is a shortage of grass.
- Various types of grass like fodder crops:
  Dharaf (Gujarat Dharaf-1), Anjan (Pusa Yellow Anjan), Marcel (Gujarat marvel grass-1), Shaniar (Gujarat shaniar-1) and jinjvo, dhaman, hemeta and clataria are grown in Gujarat.
- Generally, all grass types should be harvested in October after four month of growing.

TECHNICAL REFORMS IN AGRICULTURE

- The changes which have taken place in seeds, fertilisers and farm implements in India are known as technical reforms.
- Earlier, farming was carried out by simple and ordinary farm implements like sickle, spade, hoe (pavdo), plough and bullock cart now modern implements like tractors and threshers are used. - Before the farmers used leather bags and water wheel for irrigation now they use submersible pumps or mono bloc pumps, solar pumps, drip irrigation and sprinklers.
- Farmers also use chemical fertilisers, hybrid seeds like BT seeds, insecticides, drip irrigation and green-houses.
- Chemical fertilisers like di-ammonia phosphate (DAP), nitrogen, phosphorous, potash (NPK) urea and other bio-fertilisers, liquid bio-fertiliser, bio-tech seeds are used.
- Farmers are guided through mass media like radio, television (DD Kisan Channel), newspapers, SMS or call on toll free number 1800 180 1551 (Kisan Call Centre).
- Government Farm web portals, i-khedut and mobile app like 'agri market' are also there.
- New agricultural researches and techniques reach the farmers through Gram Sevaks.
- There is a Farmers Training Centre (FTC) in every district to train farmers.
- Information and guidance is provided to farmers through agricultural fairs.
- Agricultural University and colleges are established in every state. In Gujarat there are Universities at Dantiwada, Junagadh, Anand and Navsari.
- At the national level the Department of Agricultural Research and Education (DARE) and Indian Council for Agricultural Research (ICAR) have been set up.

INSTITUTIONAL REFORMS

The following institutional reforms have been introduced by the government to improve the agricultural production:

- The Zamindari System has been abolished and the law of 'Land to the tiller' and Land Tenancy Acts have been implemented to give farmers the right to become land owners.
- The Land Ceiling Act has removed disparity among the land owners.
- Farmers are given financial help for crop subsidy by Kisan Credit Card, nationalised and cooperative banks.
- Farmers are given insurance protection of their crops through Prime Minister Crop Insurance Scheme.
- When the crops fail due to drought or excessive rain, farmers are given financial help by Government.
- An open auction process is held for the sale of farm products in the marketing yards.
- Facilities like cooperative societies, market associations, co-operative warehouses, cold storage transportation are provided to farmers.
- Following organisations are operating for the purchase of the farm products from the farmers at support prices.
  1. National Agricultural Co-operative Marketing Federation of India (NAFED)
  2. Gujarat Co-operative Oil Seeds Growers' Federation (GROFED)
  3. National Dairy Development Board (NDDB)

GREEN REVOLUTION

- Before Green Revolution there was an acute shortage of food grains in the country.
- If an agrarian country has to import food grains, the country's political freedom is in danger.
- Green Revolution took place in our country in the decade of 1960.
- The huge increase in agricultural production with the help of improved seeds, chemical fertilisers, mechanical equipment, intense efforts of the farmers, electricity and improved facilities in irrigation is known as 'Green Revolution'.
- There has been a record production of wheat and paddy due to Green Revolution.
- Today the country does not have to import food grains. It is self-sufficient.
- The country maintains a buffer stock natural calamity over come successfully.
- However, the production of cash crops has increased and the production of pulses and other cereals has decreased.
- The country will need to have another Green Revolution to reach the stage where other countries have progressed in agriculture.

FOOD SECURITY

- Self-sufficiency in food grains is a must. Lack of food grains can put the political freedom of the country in danger.
- After the Green Revolution, India has become self-reliant in food grains.
- In 1950-51, India produced 51 crore tonnes of food grains which increased to 265.04 crore tonnes in 2013-14 but the population has also increased.
- In 1951, the Indian population was 36.10 crores, which increased to 125 crores today.
- This has increased the demand for food grains.
- The minimum requirement of food grains of the country can be fulfilled today.
- It is necessary to maintain buffer stock of the grains to prevent scarcity of food grains during droughts or less production.
- The wastage of food grains must be prevented by having proper warehouses for the storage of food grains.
- Every year when the buffer stock is replenished the previous buffer stock should be provided free to people living below poverty line.
- The government needs to increase the stock of food grains and supply it to the poor people through the Food Security Act.

IMPACT OF GLOBALISATION ON INDIAN AGRICULTURE

- The policy of globalisation has been implemented to ensure that the Indian farmer can sell his farm products in world markets and earn profits.
- Many changes have been seen in agriculture due to globalisation.
- Cotton, chillies and sesame of Gujarat are available in China market and different fruits of the world are available in Indian markets.
- The costly 'genetically modified' BT seeds sold by the Multi-National Companies are now available in India. Due to this production of cotton and maize has increased.
- The domestic farm products have to face tough global competition.
- Some products have gained global markets hence there is necessity for registration of their patents.
- It is necessary to register qualitative farm production as National Patent in the world market. -India needs to use new technology and maintain quality to compete globally.

PRACTICE SHEET – 1

1. _____has remained a prime economic activity of most of the people in India.
(A) Business (B) Industry (C) Agriculture (D) Service

2. What type of farming is done where the rainfall is less and irrigation facilities are inadequate?
(A) Subsistence Farming (B) Shifting Farming
(C) Dry Farming (D) Intensive Farming

3. Which type of farming is a capital intensive and demands good managerial ability?
(A) Plantation Farming (B) Subsistence Farming
(C) Intensive Farming (D) Shifting Farming

4. In which type of agriculture in India are forests burnt and cleared for farming?
(A) Subsistence (B) Plantation (C) Shifting (D) Dry

5. _____is the mechanical way of farming through utilisation of increased irrigation.
(A) Mixed farming (B) Intensive farming
(C) Extensive agriculture (D) Consolidated farming

6. _____of the total land under cultivation in India is used for food grains?
(A) 70 % (B) 75% (C) 80% (D) 57%

7. What is the contribution of agriculture to the National Product of the country?
(A) 23% (B) 17% (C) 35% (D) 50%

8. _____of India's labour power is engaged in agriculture.
(A) 78% (B) 75% (C) 72% (D) 50%

9. Crops and other farm products hold about _____contribution in export which earns huge foreign exchange.
(A) 18% (B) 15% (C) 12% (D) 10%

10. By what name is the crop, grown during rainy season called?
(A) Kharif (B) Zaid (C) Seasonal (D) Rabi

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
C	C	A	C	B	B	B	D	A	A

PRACTICE SHEET – 2

1. _____is not a plantation crop.
(A) Coffee (B) Rubber (C) Tea (D) Jute

2. Which country is the largest producer of tea in the world?
(A) Japan (B) Brazil (C) India (D) Sri Lanka

3. Which country has maximum tea plantations and is the largest exporter of tea?
(A) Japan (B) USA (C) India (D) England

4. India leads the world in the production of which of the following crops?
(A) Wheat (B) Paddy (C) Tobacco (D) Tea

5. Which state in India produces the maximum quantity of tea?
(A) Madhya Pradesh (B) Assam (C) Uttaranchal (D) Kerala

6. Water should not remain stagnant at the roots in the cultivation of _____.
(A) Coffee (B) Bananas (C) Wheat (D) Tea

7. Which of the following is not a major tea producing state?
(A) West Bengal (B) Uttaranchal (C) Karnataka (D) Bihar

8. Direct sunrays should not fall on the plants of which crop?
(A) Tea (B) Coffee (C) Cocoa (D) Cotton

9. Tea requires temperature of _____for its cultivation.
(A) $18°$ to $25°C$ (B) $20°$ to $30°C$ (C) $25°$ to $35°C$ (D) more than $30°C$

10. Tea requires about _____cm of rainfall for its cultivation.
(A) 120 (B) 150 (C) 200 (D) more than 200

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
D	C	C	D	B	D	D	B	B	C

4 – WATER RESOURCES

SOME FACTS ABOUT WATER

- 96.5% of the total volume of world's water is estimated to exist as oceans.
- Fresh water is mainly obtained from surface run off and ground water that is continually being renewed and recharged through the hydrological cycle.
- Only 2.5% of the earth's water exist as fresh water. Nearly 70% of this fresh water occurs as ice sheets and glaciers in Antarctica, Greenland and the mountainous regions of the world.
- India receive 4% of the global precipitation and ranks 133 in the world in terms of water availability per person per annum.
- By 2025, it is predicted that large parts of India will join countries regions having absolute water scarcity.

FACTORS RESPONSIBLE FOR WATER SCARCITY:

Shortage of water as compared to its demand is known as water scarcity.

(i) Growing population: Growing population is one of the basic factors which is responsible for scarcity of water. Most of our cities are facing this problem due to over population. A large population means more water not only for domestic use but also to produce more food.

(ii) Commercialization of agriculture: After the success of green revolution our farmers are producing commercial crops. The commercial crops need more water and other inputs. Assured means of irrigation like tube-wells and wells are responsible for falling groundwater levels.

(iii) Variation in seasonal and annual precipitation: Precipitation is the main source of water in India but arrival and departure of monsoon in India is uncertain. Even the distribution of rainfall is uneven. Though the average precipitation in India as a whole is estimated at 117 cm in a year but it is less than 20 cm in the part of the Thar Desert.

(iv) Industrialization and urbanization: Post independent India witnessed intensive industrialization and urbanization. Today, large industrial houses are common in the form of industrial houses are common in the form of industrial units of many MNCs (Multinational Corporations). The ever increasing number of industries has made matters worse by exerting pressure on existing freshwater resources. Industries apart from being heavy users of water also require power to run them. Much of this energy comes from hydroelectric power. Urbanization has also aggravated the problem of water scarcity. Most of our cities are over populated. Over population over utilize the water resources and also pollutes the existing resources.

(v) Over utilization and misutilization of water: There are many states in India which have **over** utilized its water resources like Punjab and Haryana. Due to this the water table in these states has lowered.

(vi) Pollution: Pollution of water resources is another factor which is responsible for water scarcity. Domestic waste and industrial waste are the main factors responsible for pollution of water.

MULTIPURPOSE RIVER PROJECTS- THE TEMPLES OF MODERN INDIA:

A multipurpose project is that which fulfils a variety of purposes at the same time, for example – Irrigation, generation of electricity, food control, fish breeding, soil conservation.

Main Objectives:

(i) Generation of power (electricity): These multipurpose projects are the main source of power generation. According to Economic survey 2005-06 these produce more than 30,000MW power. They provide us neat, pollution free and cheapest energy which is the back-bone of industry and agriculture.

(ii) Flood control: These projects control the floods because water can be stored in them. These projects have converted many 'rivers of sorrows' into rivers of boon. For example river Kosi.

(iii) **Soil conservation**: These conserve the soil because they slow down the speed of water.

(iv) **Irrigation:** These projects are the main source of irrigation for our country. These irrigate the fields during the dry seasons. Many canals have been dug and they irrigate dry areas.

(v) **Afforestation**: Trees are systematically planted in and around reservoirs. This helps in preserving '**wildlife**' and natural ecosystem.

(vi) **Water Navigation**: Multipurpose river valley projects often for inland water navigation through main rivers and canals. It is the cheapest means of transport for heavy goods.

(vii) **Fisheries**: These provide ideal condition for the breeding of fish. Chosen varieties of fish are allowed to grow. Such well developed fish farms can be the cheapest source of protein for our people.

(viii) **Tourist centres**: These projects are well cared and are scientifically developed. So these become the centres of tourist attraction.

IN RECENT YEARS MULTIPURPOSE PROJECTS AND LARGE DAMS HAVE COME UNDER GREAT SCRUTINY AND OPPOSITION DUE TO FOLLOWING REASONS:

(i) **High cost:** The initial cost of building the dams is very high. It requires a lot of capital and engineering skills and modern machinery which is not available in India.

(ii) **Adverse impact on environment:** A vast variety of flora and fauna (plants and animals) as well as human settlements get submerged in the water of reservoir formed by the dam.

(iii) **Adverse effect on the fertility of the soil:** Due to construction of dams there are no annual floods in the river. And because of this the soil of the downstream region does not get nutrient rich "**Silt**". This decreases the fertility of the soil.

(iv) **Adverse impact on aquatic life:** Due to construction of dam on the river, the fish in the downstream area do not get sufficient nutrient material. Regulating and damming of rivers affect natural flow of water causing poor sediment flow downward and excessive sedimentation at the bottom of reservoir, resulting in rockier stream beds and poorer habitats for the rivers aquatic life. Dams also fragment rivers making it difficult for aquatic fauna to migrate for spawning i.e. to produce eggs.

(v) **Non-availability of water throughout the year:** Most of the rivers in India flow only for few months. So water is not sufficient to build a dam.

(vi) **Disputes between different states:** This is one of the major causes of delay of many projects states have dispute over sharing of water, height of dam and so on.

(vii) **Displacement of local communities:** The building of large dams results in displacement of local communities. The local people often had to give up their land and livelihood and their meager access and control over resources for the greater food of the nation.

(viii) **Change in the cropping pattern:** Multipurpose projects are responsible for providing assured means of irrigation to farmers. Due to this most of the farmers have changed the cropping pattern shifting to water intensive and commercial crops. This has lead to Stalinization of soil leading to ecological imbalance. Most of the objectives to the projects arose due to their failure to achieve the purposes for which they were built. Ironically, the dams that were constructed to control floods have triggered floods due to sedimentation in the reservoir. Moreover, the big dams have mostly been unsuccessful in controlling floods at the time of excessive rainfall. The release of water from dams during heavy rains is becoming the main source of floods in many states. It is also observed that the multipurpose projects induced earthquakes caused water borne diseases and pests and pollution resulting from excessive use of water.

RAINWATER HARVESTING

"It is technique of increasing the recharge of ground water by capturing and storing rain water by constructing structures such as percolating pits, check dams etc. People have been using water harvesting methods since time immemorial. People had in depth knowledge of rainfall regimes and soil types and developed wide ranging techniques to harvest rainwater, groundwater, river water and flood water in keeping with the local ecological conditions and their water needs. Different regions had developed different techniques to conserve water.

- People of mountainous regions had built diversion channels like the 'guls' and 'kuls' for agriculture.
- People living in arid regions like Rajasthan, used Rooftop rainwater harvesting techniques to store drinking water. that allowed the water to stagnant and moisten the soil like the 'Khadins' in Jaisalmer and Johads in other parts of Rajasthan.
- In the semi-arid and arid regions of Rajasthan, particularly in Phalodi, Bikaner and Barmer most of the houses, had underground tanks or 'tanks' for storing water.
- In these regions rooftop rainwater harvesting system was used to store water and these tanks were part of well developed rooftop rainwater harvesting regions.
- These tanks were connected to the sloping roofs through a pipe.
- Rain falling on the rooftops would travel down the pipe and was stored in these underground 'tanks'. The first spell of rain was usually not collected as this would clean the roofs and the pipes. The rainwater from the subsequent showers was then collected.
- The agricultural fields were also converted into rain fed storage structures.

IMPORTANCE OF RAINWATER HARVESTING

- It is reliable source of water when all other sources of water dry up.
- It is considered the pure form of natural water.
- It is also given to sick people.
- It can be used to beat the summer heat if underground rooms adjoining the tanks are built.

Today, in most of arid and semi-arid regions of India the practice of rooftop rainwater harvesting is on the decline as plenty of water is available due to the perennial canal. There are only few houses which still maintain the tanks since they do not like the taste of tap water. Fortunately, there are some parts of India where rooftop rainwater harvesting is being successfully adapted to store and conserve water. In Gendathur, a remote backward village in Mysore, Karnataka, villagers have installed in their households rooftop rainwater harvesting system to meet their growing water needs. Nearly 200 households have installed this system and the village has earned the rare distinction of being rich in rainwater. Gendathur receives an annual precipitation of 1,000 mm and with 80 percent of collection efficiency and of about 10 fillings, every house can collect and use about 50,000 liters of water annually.

PRACTICE SHEET – 1

1. Which is an important resource for India but is facing problems?
(A) Soil (B) Water (C) Forest (D) Mountain

2. Which is the original source of water on the earth?
(A) Rain (B) Lakes (C) Wells (D) Canals

3. Which nature's gift is an inseparable part of man's life?
(A) Dew (B) Water (C) Snow (D) Minerals

4. For what purpose is maximum amount of water used in India?
(A) Industries (B) Building construction
(C) Household use (D) Irrigation

5. Water which percolates into the lower layers of soil in known as_____.
(A) Ground water (B) Tube well (C) Irrigated water (D) Reservoir

6. In the Northern plains there is about _____of ground water.
(A) 60% (B) 8.5% (C) 24% (D) 42%

7. About _____of the agricultural area in India still depends on rain.
(A) Two third (B) One fourth (C) Half (D) Three fourth

8. What percentage of the water available in India is used for irrigation?
(A) 60% (B) 84% (C) 24% (D) 44%

9. About _____of the cultivable land in India is under irrigation.
(A) 38% (B) 38.5% (C) 24% (D) 37%

10. In Punjab about _____land is under irrigation.
(A) 38% (B) 90.8% (C) 40% (D) 37%

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	A	B	D	A	D	A	B	A	B

PRACTICE SHEET – 2

1. Where was the Eastern Yamuna Canal constructed?
(A) Haryana (B) Punjab (C) Uttar Pradesh (D) Bihar

2. On which river was the 'Grand Anicut' constructed?
(A) Godavari (B) Kaveri (C) Krishna (D) Tungabhadra

3. _____was constructed in Uttar Pradesh in 1882.
(A) East Ganga canal (B) West Ganga canal (C) East Yamuna Canal (D) Grand Anicut Canal

4. In which state is Hirakud multipurpose project located?
(A) Bihar (B) West Bengal (C) Orissa (D) Jharkhand

5. Hirakud multipurpose project is situated on river_____.
(A) Kaveri (B) Krishna (C) Mahanadi (D) Satiuj

6. Which of the following states is a beneficiary of Chambal Valley Project?
(A) Gujarat (B) Madhya Pradesh (C) Uttar Pradesh (D) Haryana

7. Which of the following states is the only beneficiary of Kosi Project?
(A) Jharkhand (B) Bihar (C) Uttar Pradesh (D) West Bengal

8. Which of the following states is not a beneficiary of Bhakhra-Nangal Project?
(A) Jammu and Kashmir (B) Rajasthan
(C) Punjab (D) Haryana

9. Bhakra Nangal project is constructed on river_____.
(A) Yamuna (B) Ganga (C) Satluj (D) Kosi

10. Sardar Sarovar project is constructed on river_____.
(A) Mahi (B) Vatrak (C) Sabarmati (D) Narmada

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
C	B	C	C	C	B	B	A	C	D

5 – MINERALS AND ENERGY RESOURCES

1. (A) MINERAL

They are naturally occurring homogenous substance having physical properties of hardness, color and form. They occur in rocks. (Study of rocks is called GEOLOGY)

ORE: The mineral occurring in combination with the other impurities is called an Ore.

MINING: The process of obtaining minerals from the earth interior.

(B) CLASSIFICATION OF MINERALS

<table>
<tr><th colspan="2">Metallic</th><th>Non-Metallic</th></tr>
<tr><td colspan="2">1. (Minerals which have metals)
Iron ore, Gold, Silver, Cobalt etc</td><td>1. (Minerals which do not have metals)
Mica, Coal, Limestone, Potash etc</td></tr>
<tr><td>Ferrous</td><td>Non-Ferrous</td><td rowspan="3"></td></tr>
<tr><td>They have iron metal</td><td>They contain metals other than iron</td></tr>
<tr><td>Iron ore,
Chromites, nickel</td><td>Gold, Silver,
Bauxite, Copper</td></tr>
<tr><td colspan="2">2. They have luster</td><td>2. They are dull in luster</td></tr>
<tr><td colspan="2">3. They are mostly associated with igneous and metamorphous rocks</td><td>3. They are mostly associated with sedimentary or metamorphic rocks.</td></tr>
<tr><td colspan="2">4. These minerals are malleable</td><td>4. These minerals are not malleable</td></tr>
<tr><td colspan="2">5. They are generally solid and heavy</td><td>5. They are neither solid nor heavy. Some of than are found in liquid as well as gaseous states.</td></tr>
</table>

(C) MODE OF OCCURRENCE OF MINERALS

(i) In igneous and metamorphic rocks minerals may occur in the cracks, crevices, faults or joints. The smaller occurrences are called veins and the larger are called veins and the larger are called lodes. In most cases, they are formed when minerals in liquid/ molten and gaseous forms are forced upward through cavities towards the earth's surface. They cool and solidify as they rise. Major metallic minerals like tin, copper, zinc and lead etc. are obtained from veins and lodes.

(ii) In sedimentary rocks a number of minerals occur in beds or layers. They have been formed as a result of deposition, accumulation and concentration in horizontal strata. Coal and some forms of iron ore have been concentrated as a result of long periods under great heat and pressure. Another group of sedimentary minerals include gypsum, potash salt and sodium salt. These are formed as a result of evaporation especially in arid regions.

(iii) Another mode or formation involves the decomposition of surface rocks, and the removal of soluble constituents, leaving a residual mass of weathered material containing ores. Bauxite is formed this way.

(iv) Certain minerals may occur as alluvial deposits in sands of valley floors and the base of hills. These deposits are called 'placer deposits' and generally contain minerals, which are not corroded by water. Gold, silver, tin and platinum are most important among such minerals.

(v) The ocean waters contain vast quantities of minerals, but most of these are too widely diffused to be of economic significance. However, common salt, magnesium and bromine are largely derived from ocean waters. The ocean beds, too, are rich in manganese nodules.

2. DISTRIBUTION OF MINERALS

(i) India is rich in mineral resources.

(ii) Peninsular rocks contain lots of the reserves of coal, metallic, mica and other non-metallic minerals.

(iii) Sedimentary rocks in Gujarat and Assam have most of the Petroleum deposits.

(iv) Rajasthan has reserves of many non-ferrous minerals.

(A) Ferrous Minerals: They provide a strong base for the development of metallurgical industries.

(a) Iron Ore

(i) It is the basic mineral and the backbone of industrial development. Iron is such an important metal that our modern age is sometimes called the Iron Age. All machines and machine parts are made of Iron. Iron is also used for making buildings and bridges.

(1) Magnetite is the finest iron ore with a very high content of iron up to 70 percent. It has excellent magnetic qualities, especially valuable in the electrical industry.

(2) Hematite has a slightly lower iron content than magnetite. It is the most important industrial iron ore in terms of quantity used.

(3) Limonite contains 40 – 60% iron content.

(4) Siderite contain 40 – 50%.

(ii) Major iron ore belts in India are

- Orissa – Jharkhand belt
- Durg – Bastar – Chandrapur belt in Chhattisgarh and Maharashtra.

(iii) Bellary-Chitradurga- Chikmaglur – Tumkur belt in Karnataka.

(iv) Maharashtra-Goa belt includes the state of Goa and Ratnagiri district of Maharashtra.

(v) India exports iron to Japan, Korea and European and Gulf countries.

(b) Manganese: It is used in the manufacture or steel, preparing alloys, manufacturing bleaching powder, insecticides, paints and batteries.

Major Producing States:- Maharashtra, M.P., Orissa, Karnataka and Andhra Pradesh.

(B) Non-Ferrous Minerals

These minerals include copper, bauxite, lead, zinc and gold, play a vital role in a number of metallurgical, engineering and electrical industries.

(i) Copper

Being malleable and ductile good conductor electric cables, electronic and chemical industries.

Major Producing States:- Balaghat mines in M.P., Khetri mines in Rajasthan, Singbhum district of Jharkhand, Karnataka and A.P.

(ii) Bauxite

- It is a light metal and used in manufacturing aero-plane, utensils and other household goods.
- It combines the strength of metals such as iron with extreme lightness and also with good conductivity and great malleability.
- Bauxite producing state in India and Panchpat deposits in Koraput district are the most important mali bauxite deposits in the state.

(C) Non-Ferrous Minerals

Mica

- It has insulating characteristic di-electric strength, low power loss factor and resistance to high voltage it is used in manufacture of electrical goods and electronic industries.
- India stands first among the Mica producing countries of the world.
- Koderma gaya – Hazaribagh bet of Jharkhand > 50% of India's mica.
- Nellore mica belt of Andhra Pradesh and Rajasthan.

(D) Rock minerals

Lime Stone

- It is associated with rocks composed of Ca_2CO_3, $MgCO_3$.
- They are mainly used in cement industry, smelting iron and chemical industry.
- M.P, Chhattisgarh, A.P., Rajasthan, Gujarat, Himachal Pradesh and Karnataka.

3. (A) CONSERVATION OF MINERALS

(i) Only one percent of the earth's crust contains workable mineral deposits.

(ii) The geological process of mineral formation are so slow that the rates of replenishment are infinitely small in comparison to the present rates of consumption.

(iii) Continued extraction of ores leads to increasing costs as mineral extraction comes from greater depths along with decrease in quality.

(B) METHODS TO CONSERVE MINERALS

(i) Efforts should be made be made to use mineral resources in a planned and sustainable manners.

(ii) Improved technologies need to be constantly evolved to allow use of low grade ores at low costs.

(iii) Recycling of metals using scrap metals and other substitutes are steps in conserving our mineral resources for the future.

4. ENERGY RESOURCES

- Energy is required for all activities. It can be generated from fuel minerals like coal, petroleum, natural gas, uranium and from electricity.
- Energy resources can be classified as Conventional and non-conventional sources.

Conventional sources of energy	Non-Conventional source Energy
• These are the sources which have been in use since the industrial period started	• These are the new energy resources which have begun to be used.
• They are expensive	• They are inexpensive
• They are exhaustible and cannot be replenished	• They are renewable and inexhaustible
• They are convenient and versatile form of energy and are in great demand by industry	• They are not very convenient and versatile and are not in demand by industry.
• e.g. coil, oil, natural gas, hydro electricity and nuclear energy	• e.g. sun, wind, tide, geothermal energy, biomass etc

Renewable resources	Non-renewable resources
1. They are those resources which may be obtained continuously year after year for the production of electricity	1. These resources are those which once mined and used cannot be regenerated
2. e.g. Hydro electricity, sun wind, human, and animal waste etc	2. e.g. coal, petroleum, natural gas etc

5. (A) CONVENTIONAL ENERGY RESOURCES –

(1) Coal

(i) It has been a major industrial fuel and is also used as raw material in iron and steel industry and chemical industry

(ii) Coal is used for the generation of electricity of thermal power plant

(iii) It is used as raw material for getting ammonia and dyes.

(iv) It is used for smelting iron ore in blast furnace

(v) Coal is a bulky material and loses weight on use as it is reduced to ash. Hence heavy industries and thermal power station are located on or near the coal fields.

Coal is of four types

(a) Anthracite -

(i) This is the best quality of coal which contains more than 80% of carbon content in it.

(ii) It is generally formed when the beds of coal are subjected to extreme pressure due to the earth's movements

(iii) It is found only in J & K.

(b) Bituminous

(i) This type of coal contains 60 – 80% of carbon

(ii) This type of coal is most widely used.

(iii) It is mainly found in Jharkhand, Orissa, Chhattisgarh, M.P., West Bengal.

(c) Lignite -

(i) It contains 50 – 60% of carbon contents

(ii) It is inferior quality of coal and is brown in colour hence it is also called brown coal

(iii) It is found in Rajasthan, Neyveli, Tamil Nadu and Assam

(d) Peat-

(i) It contains less than 50% of carbon

(ii) It burns like charcoal and wood and emits smoke

Location

Major resources of gondwana coal, which are metallurgical coal, are located in Damodar Valley. Bokaro Raniganj, Jharia are imp coal field. The Godavari, Mahanadi, Son and Wardha Valleys also contain coal deposits.

(2) Petroleum and Natural Gas

(a) Petroleum

- It is another important fuel. It is used in generating power, running automobiles, flying airplanes, lubrication machines etc.
- It provides fuel for heat and raw materials for a number of manufacturing industries.
- Petroleum refineries act as a "nodal industry' for synthetic textile, fertilizer and numerous chemical industries.
- Most of the petroleum occurrence in India are associated with anticlines and fault traps in the rock formation of the tertiary age.

PETROLEUM RESERVES

(i) 63% of the total production comes from Mumbai High, Mumbai, Bassun and Aliabet are the three major shores off oil fields in Western India

(ii) 18% from Gujarat. Important oil fields of Gujrat are in Ankleshwar

(iii) 16% from Assam. Oil fields of Assam are located at Digboi, Naharkalia and Moran-Hugrijan.

(b) Natural Gas – They are found in association with mineral oil in the oil fields. But there are some fields which exclusively produce Natural gas

Uses

(i) It is used as source of power

(ii) It is also used as raw material in Petro-Chemical Industry

(iii) It takes less time in establishing a power plant based on natural gas.

(iv) Fertilizers are also produced by Natural gas.

(v) Its transportation is very easy and economical as it is transported through pipelines over long distances.

(vi) It is environment friendly because of low carbon dioxide emissions.

Location

The fields are located in Tripura, Assam and Rajasthan and in all the off shore fields of Mahandi, Godavari, Krishna and Kaveri river basins, Andaman and Nicobar islands.

- Natural gas supplied for domestic use is called L.P.G. (Liquified Petroleum gas)
- Gas used in running vehicles is known as C.N.G. (Compressed Natural Gas)
- Gas Authority of India ltd (GAIL) handles the transportation, processing and marketing of natural gas.

Oil Refining

Oil is refined and numerous petroleum products are separated from it in the oil refineries
North India – Mathura, Panipat and Bhatinda
Western India – Mumbai, Trombay, Koyali, Jamnagar
South India – Manglore, Kochi, Chennai, Vishakhapatnam, Narimanam and Tatipaka
East India – Digboi, Numaligarh, Guwhati, Bongaigaon, Barauni, Haldia
Central India – Bina

Importance of Bombay High –

(i) The discovery of oil in the sea bed near Bombay is known as Bombay High
(ii) It is the richest oilfield of India
(iii) The deposit of oil in Bombay High were deep under the seabed, India developed this oilfield with the help of mobile offshore drilling platform

3. Electricity – Per capita consumption of Electricity in India is 349kwh. Electricity in India comes from three sources water, mineral fuel and atomic minerals.

(a) Hydro Electricity

(i) It is generated from turbines run by the use of running water
(ii) It is permanent source of electric supply
(iii) It is pollution free
Thus every country of world is depending more and more on hydel power.
(iv) Andhra Pradesh, Karnataka, Kerala, Orissa and Punjab are the major hydel power producing states the country.

(b) Thermal Electricity

(i) It is generated by using coal, petroleum and natural gas. These sources are of mineral origin. They are so often called fossil fuels.
(ii) This is not a permanent source of electricity as the coal, petroleum and natural gas deposits are showing signs of exhaustion.
(iii) It is not pollution free.

(c) Nuclear Electricity- Atomic energy is generated by splitting nuclear substances such as atoms of uranium, thorium under controlled conditions. Splitting of these atoms gives out a lot of energy which can be used for generating electricity. India is deficient in coal, petroleum and natural gas so she has to depend either on hydro electricity or on nuclear power. Where it is difficult to produce hydro-electricity, the nuclear power plays an important part.

Uses

1. India is the first country to utilize atomic energy for agricultural purposes.
2. It is used for medicinal purposes also.
3. This energy is also being used for improving quality of seeds
4. For developing manmade lakes and diverting the river channels.

Six atomic power stations

1. Tarapur situated on the borders of Maharashtra and Gujarat
2. Rawatbhata situated near Kota in Rajasthan
3. Kalpakkam situated near Madras in Tamil Nadu
4. Narora in U.P. 5. Kakrapara in Gujarat 6. Kaiga in Karnataka

(B) NON CONVENTIONAL ENERGY SOURCES: These resources are renewable or inexhaustible and are inexpensive in nature. The non-conventional sources of energy includes wind, tides, geothermal energy, biomass, farm and animal waste.

1. Wind Energy:

(i) Wind energy farms need huge installation costs.

(ii) It is used in pumping water, moving wind mill, irrigating farms and generating electricity.

(iii) Tamil Nadu has the largest wind farm cluster and Gujarat is well placed for setting wind farms.

(iv) 45000 MW of energy can be obtained from wind energy.

2. Tidal Energy:

(i) Electricity is produced from the energy created by high tides which enter the narrow creeks.

(ii) Gulfs of Katchh and Cambay are best suited for harnessing tidal wave energy.

3. Geo-Thermal Energy:

(i) It is the energy obtained from hot earth in the form of hot springs, geysers and wells.

(ii) Cold storage plants can be energized by the use of energy.

(iii) It is generated in Himachal Pradesh.

4. Farm Animal and Human Wastes:

(i) Urja Gas generated by using biomass, animal and poultry wastes and human excreta. Gobar gas plant is being set up in villages to fulfill power needs.

(ii) This energy is being used in lighting homes and streets cooking and irrigation purposes.

5. Solar Energy:

(i) Sun is the most inexhaustible and abundant source of energy.

(ii) Solar cell is used to trap solar energy for producing electricity. Photovoltaic technology converts sunlight into electricity.

(iii) It has a huge potential.

(iv) It is universal.

(v) Solar energy is used in cooking, water heating, water desalination, space heating and crop during.

(vi) Solar energy can help in saving our foreign exchange when we have to import mineral oil in large quantities.

(vii) India is a tropical country as such it has wider scope for the production of solar energy.

(viii) Thar Desert of Rajasthan has become the biggest solar energy house of India.

6. Conservation of Energy Resources:

(i) Consumption of energy in all forms has been steadily rising all over the county Promotion of energy conservation and increased use of renewable energy sources are the twin planks of sustainable energy

(ii) Methods of Conservation of energy resources

(a) Judicious use

(b) Use of public transport instead of individual vehicles

(c) Use of power saving devices.

(d) Switching off electricity when not in use.

(e) Use of non-conventional sources of energy.

PRACTICE SHEET – 1

1. There are _____ types of iron ore found in India
(A) 3 (B) 2 (C) 0 4 (D) 0 5

2. Maximum iron ore is obtained from _____ state in India
(A) Orissa (B) U P (C) Chhattisgarh (D) Karnataka

3. _____ was the first mineral used by men
(A) Manganese (B) Copper (C) Bauxite (D) Iron

4. _____ was found for the first time at Les Baux in 1921 in France
(A) Manganese (B) Copper (C) Bauxite (D) Iron

5. Diamond are found in _____ rocks
(A) Igneous (B) Sedimentary (C) Metamorphic (D) None of these

6. Galena is the iron ore of _____
(A) Mica (B) Lead (C) Copper (D) Manganese

7. In 1866, first oil well was dug in _____ to find out oil
(A) Gujarat (B) Assam (C) Maharashtra (D) Arunachal Pradesh

8. After Independence , oil was first struck at Lunej of Kheda district in _____
(A) 1952 (B) 1956 (C) 1958 (D) 1962

9. Which of the following is the best quality of Coal
(A) Anthracite (B) Bituminous (C) Lignite (D) Peat

10. The largest oil refinery of the world is located at _____
(A) Vadnagar (B) Porbandar (C) Jamnagar (D) Okhla

11. _____ is considered to be the largest natural gas reserve
(A) Khambat Basin (B) Kaveri Basin
(C) Jaisalmer (D) Ankleshwar

12. On the basis of carbon content coal can be divided in to ____ categories
(A) One (B) Two (C) Five (D) Four

13. Oil field of India are divided into _____ zones
(A) Five (B) Four (C) Three (D) Seven

14. Full form of GEDA is
(A) Gujarat Energy Development Agency
(B) Gujarat Energy Development Association
(C) Gujarat Electrical Development Agency
(D) Gujarat Energy Developing Association

15. In _____,Commission For Additional Sources Of Energy
(A) 1985 (B) 1981 (C) 1987 (D) 1985

16. GEDA has established a solar cold storage neat_____
(A) Surat (B) Ahmadabad (C) Vadodra (D) Rajkot

17. _____ holds first place in the bio-gas production
(A) U P (B) Gujarat
(C) Himachal Pradesh (D) Tamil Nadu

18. In 1910, _____ started the project to get electricity with the help of tides and ebbs.
(A) Germany (B) France (C) USA (D) Russia

19. Some officers from Government of India want to visit Gujarat to survey the possibility of using the geothermal energy in future in Gujarat. Which place they should avoid

(A) Tulsishyam (B) Unai (C) Saputara (D) Lasundra

20. Match the correct pairs and find the answer

(a) Silver, platinum	(1) A mineral of common use
(b) Magnesium, Titanium	(2) A Mineral used in mixed form
(c) Lead, Nickel	(3) Precious metallic mineral
(d) Tungsten, Vanadium	(4) Light metallic mineral

(A) (a) – 1, (b) – 3, (c) – 2, (d) – 4 (B) (a) - 3, (b) – 4, (c) – 1, (d) – 2

(C) (a) – 2, (b) – 2, (c) – 4, (d) – 3 (D) (a) – 3, (b) – 1, (c) – 3, (d) – 2

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
C	D	B	C	C	B	B	C	A	C
11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
D	D	A	A	B	C	A	B	C	B

6 – MANUFACTURING INDUSTRIES

Many of the natural resources cannot be utilized directly without processing and converting then into various things for example we can wear clothes but not cotton. This conversion of primary products into more refined and useable form is known as manufacturing.

(a) Importance of Industrial Development

Industrialization plays a vital role in the economic development of a country

1. **Utilization of Natural resources:** Utilization of huge volume of natural resources has become possible with the development of industries in the country.
2. **Balanced Sectoral Development:** Indian economy has been facing an unbalance sectoral development. Growth in industrialization in the country can attain balanced sectoral development and its can reduce the too much dependence of the economy on the agricultural sector by providing jobs to the people in secondary and tertiary sectors.
3. **Enhanced Capital Formation:** With the growing industrialization of the economy, the volume and rate of capital formation in the country are gradually being enhanced due to increase in the level of income and saving capacity of people in general. Moreover, increasing volume of investment in industries has led to enhancement in the rate of capital formation in the country.
4. **Increase in National Income and foreign Exchange:** Organized and unorganized industries are jointly contributing a good portion of the total national income of the country. Moreover, as a result of industrialization the level of national income and capital income of he country also increase at a satisfactory rate. Export of manufactured goods brings much needed foreign exchange.
5. **Increase in Job Opportunities:** Development of industrial sector would increase the job opportunities for a large section of the population of the country. Setting up of new industrial units can create job opportunities.

(b) Contribution of Agriculture to Industry

1. Agriculture provides raw material to industry such as jute, cotton, sugarcane etc.
2. It also acts as a source of capital formation which can be utilized in industry.
3. It provides food to the industrial workers.
4. It provides good market to the industrial product.
5. It also decreases pressure on industry.

(c) Contribution of Industry to Agriculture

1. Industry provides inputs to the Agriculture such as fertilizers, pesticides, tractors etc.
2. It provides infrastructural facilities to the industry.
3. It can absorb surplus labourers or workers of Agriculture reduce pressure on Agriculture.
4. Industry provides processed product to the agriculture, it also increases the market value of agricultural product.

CLASSIFICATION OF INDUSTRIES

I. On the Basis of Capital Investment

1. **Large Scale Industry:** Industries which employ a large number of labourers in each unit are called large scale industries. Huge investment i.e. more than 1 core is involved in large scale industries. Cotton or jute textile industries are large scale industries.
2. **Small Scale Industries:** Industries which are owned and run by individuals and which employ a small number of labourers are called small scale industries. It is also defined on capital invested. The industries in which less than 1 crore rupees are invested are known as small scale industries.

II. On the Basis of Raw-Material and Finished Goods

Industries classified on the basis of raw materials and finished goods are:

1. **Heavy Industries:** Industries which use heavy and bulky raw-materials and produce products which are heavy and bulky are called heavy industries. Iron and steel industry presents a good example of heavy industries.
2. **Light Industries:** The light industries use light raw-materials and produce light finished products. Electric fans and sewing machines are light industries.

III. On the Basis of Ownership

Since the start of the planned development of Indian economy in 1951, industries are divided into the following four classes:

1. **Private Sector Industries:** Industries owned by individuals or firms such as Bajaj Auto or TISCO situated at Jamshedpur are called private sector industries.
2. **Public Sector Industries:** Industries owned by the state and its agencies like Bharat Heavy Electricals Ltd. Or Bhilai Steel Plant or Durgapur Steel Plant are public sector industries.
3. **Joint Sector Industries:** Industries owned jointly by the private firms and the states or its agencies such as Gujarat Alkalies Ltd. or Oil India Ltd. fall in the group of joint sector industries.
4. **Co-operative Sector Industries:** Industries owned and run co-operatively by a group of people who are generally producers of raw materials of the given industry such as a sugar mill owned and run by farmers are called co-operative sector industries.

IV. On the Basis of Source of Raw Material: On the basis of source of raw materials, industries are classified as under

1. **Agro Based Industries:** Agro based industries are those industries which obtain raw material form agriculture. Cotton textile, jute textile, sugar and vegetable oil industries are representative industries of agro-based group of industries.
2. **Mineral Based Industries:** the industries that receive raw materials primarily from minerals such as iron and steel, aluminum and cement industries fall in this category.

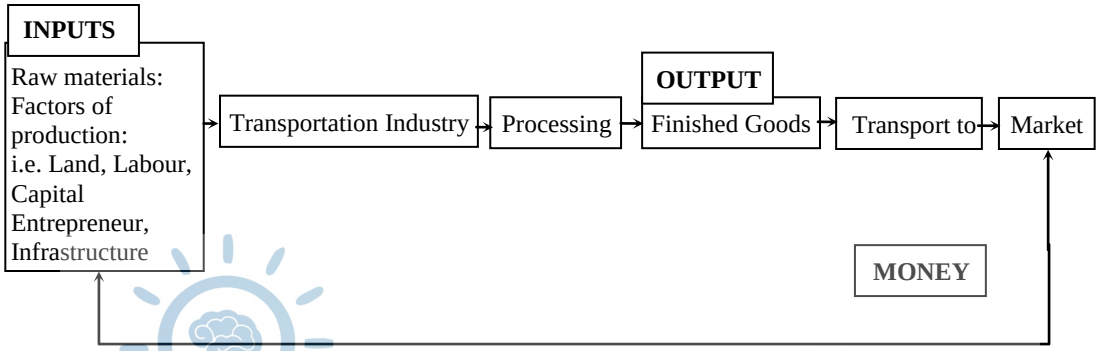
V. According to their role

1. **Cottage Industries:** Industries which artisans set up in their own houses, work with wood, cane, brass, stone etc. are called cottage industries. Handloom, khadi and leather work at the artisan's houses fall in this category.
2. **Consumer Industries:** Consumer industries covert raw material or primary products into commodities which are directly used by the people. Cotton textile, sugar industry, vegetable oil etc. are some of the consumer industries.

FACTORS IN THE LOCATION OF INDUSTRIES

1. **Availability of Raw Material:** Availability of raw material is the major factor affecting the location of the industry. An agro based industry will be located in agriculture dominating areas whereas mineral based industry will be located in mineral dominating areas. For example, cotton textile mills are located in Maharashtra due to availability of raw cotton.
2. **Power:** Most of the industries tend to concentrate at the source of power. Though power can be transmitted but those industries which consume large quantities of power are located near the source of power.
3. **Labour:** Labour is major input in most types of industries. So labour intensive industries mostly concentrate in densely populated area or labourers migrate to the industrial centre.

4. **Transport:** Transport system helps in the movement of goods and raw material. Heavy industries like iron and steel industry are located near railway stations or ports so that goods and raw material can be easily transported.
5. **Market:** the entire process of manufacturing is useless until the finished goods reach the market. Nearness to market is essential for quick disposal of manufactured goods and for purchasing raw material. Nearness to market reduces the cost of transportation. Most of the manufacturing industries concentrate in big cities as these provide market and other basic infrastructure. Thus industrialization and urbanization go hand in hand. Cities provide markets and also provide services such as banking, insurance, transport, labour, consultants and financial advice, etc. to the industry. Many industries tend to come together to make use of the advantages offered by the urban centres known as urbanization economies.



Government Policies: Government activity in planning the future distribution of industries, for reducing regional disparities, elimination of pollution for air and water and for avoiding their heavy clustering in big cities, has become an important location factor.

AGRO BASED INDUSTRIES

(a) Textile Industry

The textile industry's predominant presence in the Indian economy is manifested in its significant contribution to industrial production, generation of employment and foreign exchange earnings.

1. It adds about 14 percent to the industry production and about four percent to the GDP.
2. It provides employment to about 35 million persons. Together with allied agriculture sector, it provides employment to over 90 million people.
3. It is the only industry which is self –reliant, from raw material to the highest value added products, viz, Garments.

Importance of Textile Industry

1. **Close association with agriculture:** This industry has close link with agriculture and provides living to farmers, cotton boll pluckers and workers engaged in ginning, spinning, weaving, dyeing, designing, packaging, tailoring and sewing.
2. **Demand Creative:** Cotton textile is a demand creative industry i.e. it support many other industries such as chemicals, dyes, mill stores, packaging material and engineering works.
3. **Employment:** The industry provides employment to large number of skilled as well as unskilled workers. The handspun khadi provides large scale employment to weaves in their homes.
4. **Export:** The major share of India's exports comes from cotton textile industry. India exports yarn to Japan. Other importers of cotton goods from India are U.S.A., U.K., Russia, France, East European countries, Nepal, Singapore, Sri-Lanka and African countries. The Cotton textile industry is developed in most parts of the country, but most of the mills are concentrated in the states of Maharashtra, Gujarat and Tamil Nadu.

Maharashtra: Maharashtra excels all other states in the development of cotton textile industry. It produces 42.49% mill cloth and 16.55% yarn of India. Mumbai is the largest centre in India having 63 mills out of Maharashtra's total of 122 mills.

(i) Climate: Mumbai enjoys humid climate which is essential for this industry because thread does not break so frequently.

(ii) Transportation: Mumbai is a very important port which helps in the import of machinery and long staple cotton.

(iii) Power: Cheap hydroelectricity is readily available from the nearby areas.

(iv) Raw Material: The black-cotton soil in the hinterland of Mumbai provides cotton as the basic raw material.

(v) Cheap labour: As Mumbai and surrounding cities have high density of population so both skilled and unskilled labour is available in large number.

(vi) Market: There is ready market for Mumbai products both in India and abroad.

(vii) Capital: Mumbai is a great commercial and financial centre of India. So capital which is required is easily available.

Gujarat: Gujarat is the second largest producer of cotton textiles. This state accounts for over 23% of the mill cloth and over 8% of the yarn production of the country. Ahmadabad is the largest center where 73 out of 118 mills of Gujarat are located. Ahmadabad is the second largest center of cotton textile industry after Mumbai.

Problem of Indian Cotton textile Industry

1. **Problem of raw material:** The industry faces the problem of building up a regular supply of its raw material-cotton-inadequate quantities. Despite the importance of the industry and the long period of the growth, the position of raw material has remained unstable. The most disappointing feature of cotton cultivation is that feature of cotton (26 percent of the world acreage) the country accounts for only 10% of the world output of cotton.
2. **Problem of power:** the textile industry in our country had suffered badly for want of adequate and unfailing supply of power. Frequent power cuts and load shedding had affected the industry badly. The inadequacy of coal supplies had also affected the progress of the industry.
3. **Obsolete machinery and need for modernization:** The mill sector has been working with obsolete machinery. According to one estimate, over 80% of the machinery in the cotton textile mills is old and should be scrapped. The problem of replacement of obsolete machinery and modernization have become really acute since the Indian mill industry has to compete with countries like Taiwan, Hong Kong, South Korea etc. all of which are using the latest sophisticated machinery.

(b) Jute Industry

Jute industry is one of the most important traditional industries in India. At present most of the jute mills are concentrated in West Bengal. Kolkata is the most important centre of jute textile in India.

Importance of the Industry

1. As it is a labour intensive industry so it provides employment to skilled as well as unskilled workers.
2. Jute products are the major items of exports. India is the second largest exporter of jute products after the Bangladesh. It accounts for more than 20% of the total export earnings.

West Bengal: West Bengal has the largest concentration of jute industry. Over 84% of jute goods production of India comes from West Bengal. Andhra Pradesh is other main producer. Most of the mills are within a distance of 64 km from Kolkata along the Hugli river. As a matter of fact, there is a narrow belt of jute mills which is 100 km long and 3 km wide along both the banks of Hugli river.

The following factors have been responsible for the high concentration of jute mills in the Hugli basin:

1. **Raw Material:** the fertile Ganga-Brahmaputra delta grows about 90% of India's jute and provides raw material to jute mills here. Coal which is required for power is obtained from Raniganj and Asansol coal fields.
2. **Transportation:** cheap water transportation is available. The area is also served by a network of roads and railways.
3. **Water:** Abundant water is available for processing, washing and dyeing jute from the river Hugli.
4. **Port City:** Kolkata is a big port which helps in the import of machinery and spare parts and in the export of finished jute products.
5. **Labour:** High density of population in West Bengal and in the neighboring parts of Bihar provides abundant cheap labour. Some labour comes from U.P.
6. **Finance:** There is easy flow of capital because big capitalists are living in and around Kolkata. Banking and insurance facilities are also available.

Problems of the Indian Jute Industry

Indian Jute industry is facing very serious problems. Some of them are briefly described as under.

1. **Problem of raw material:** After independence most of the jute-producing areas went to Bangladesh resulting in acute shortage of raw jute. Although successful efforts have been made to increase the supply of raw jute since independence, it still falls short of our current requirements.
2. **International competition:** Our jute industry has to face very tough competition from synthetic packing materials of the advance countries of Europe and North America. As such the market for jute goods has shrunk.
3. **Less demand:** Due to synthetic substitutes in domestic as well as international markets the overall demand for jute products is gradually decreasing in the international market.
4. **High Prices:** The Indian jute industry is being competed out of international markets because of high prices. The high prices of Indian jute goods are explained by the use of obsolete machinery, the existence of inefficient and uneconomic units, high price of raw jute and highly unreliable supple position with regard to raw jute.

(c) Sugar Industry

The Sugar industry is one of the most important industries in India. India is the fourth major sugar producing country in the world, the first three being Russia, Brazil and Cuba in the order. Sugar industry occupies an important place among organized industries in India. Most unique feature of this industry is that most of mills are under cooperative sector because this industry is seasonal in nature.

Importance of the Sugar Industry

1. It ranks as the third largest industry in terms of its contribution to the net value added by manufacture.
2. The industry employs more than 3.25 lakhs workers, besides creating extensive indirect employment for 25 million cultivators of sugarcane.
3. It is also an importance source of excise duty for the central Government. There are now 420 sugar factories in India with a total installed capacity of 15 million tones.

Distribution: U.P., Maharashtra, Tamil Nadu, Bihar are the major producers of sugar industry has two major areas of concentration. One comprises U.P., Bihar, Haryana and Punjab in north and other that of Maharashtra, Karnataka, Tamil Nadu and A.P., in the south. The sugar industry is established in areas of sugar cultivation because

1. Its raw material is heavy and perishable.
2. Sugarcane cannot be stored for long as the loss of sucrose is inevitable.
3. Sugarcane cannot be transported over long distances because it may dry on the way.

Difference between the Sugar Industry of Northern and Peninsular India

There are marked differences between the sugar industry of their northern and the peninsular India. As a result of better conditions prevailing in the peninsular India, the sugar industry is gradually shifting from north India to the peninsular India. This is evident from the fact that previously north India used to produce about 90% of India's Sugar which is reduce to 35-40 % now.

1. **Climate:** Sugarcane is a tropical crop. Peninsular India has tropical climate which gives higher yield per unit area as compared to north India.
2. **Higher sucrose:** Due to favorable climatic conditions, the sucrose content is also higher in tropical variety of sugarcane in the south.
3. **Long crushing period:** The crushing season is also much longer in the south than in the north. For example, crushing season is of nearly four months in the north. Whereas it is of nearly 7-8 months in the south.
4. **Better management:** the co-operative sugar mills are better managed in the south than in the north.

Problems of Sugar industry

1. **Low yield of sugarcane:** Although India has the largest area under sugarcane cultivation; the yield per hectare is extremely low as compared to some of the major sugarcane producing countries of the world.
2. **Short crushing season:** Manufacturing of sugar is a seasonal phenomenon with a short crushing season varying normally form 4 to 7 months in a year. The mills and its workers remain idle during the remaining period of the year, thus creating financial problems for the industry as a whole.
3. **High cost of production:** High cost of sugarcane, inefficient technology, uneconomic process of production and heavy excise duty result in high cost of production. The production cost of sugar in India is one of the highest in the world.
4. **Old and obsolete machinery:** Most of the machinery used in Indian sugar mills, particularly those of U.P. and Bihar is old and obsolete, being 50-60 years old and needs rehabilitation.
5. **Under-utilization of by-products:** By products of sugar industry are not properly utilized. After crushing the sugarcane, the baggase is either burnt as a fuel or is used as a fodder.

MINERAL BASED INDUSTRIES

Mineral based industries are those industries which used mineral as the basic raw material. Mineral based industries from the economic backbone of a country. Iron and steel, heavy engineering and electronics are the major mineral based industries of India.

(a) Iron and Steel Industry

Iron and steel industry is a key or basic industry as it lays the foundation of other industries. All the other industries, heavy, medium and light depend on it for their machinery. The production and consumption of iron and steel is one of the most significant measures of the level of industrialization and economic growth of a country. Most of the other industries such as automobiles, locomotive, rail tracks, ship building, machine building, bridges, dams and many other industries and commercial activities depend upon iron and steel industry. Iron and steel industry is a heavy industry because all the raw materials as well as finished goods are heavy and bulky entailing heavy transportation costs.

Locational Factors

1. **Raw Material:** Iron ore, cooking coal, limestone and manganese are the main raw material, required by the industry. Iron and Steel industry used large quantity of heavy raw materials and its localization is primarily controlled by the availability of raw materials. So most of the plants are located where raw material i.e. coal and iron ore is available. Most of the iron and steel plants of India in Jharkhand, Bihar, Orissa, M.P., Chhattisgarh and Karnataka.

2. **Market:** Another important factor influencing the localization of iron and steel industry is the availability of market.

(b) Aluminum Smelting

Aluminum smelting is the second most important metallurgical industry in India. Aluminum is extracted from bauxite.

Use of Aluminum: Aluminum is a very light, yet strong metal with many uses. It is used for making pots and pans because it is a good conductor of heat. Aluminum also conducts electricity well and is used to make electrical wires. Aluminum is used to make cans for various beverages and other liquids. It can be pressed into a thin foil that is used both commercially and in homes for such purposes as wrapping foods, it is widely used in airplanes and spacecrafts. It can be made even stronger by mixing it with other metals to form alloys. Duralumin in such an alloy. It is used as the outer surface of many airplanes. The bodies and parts of some automobiles, trucks, boats and trains are made from aluminum alloys.

Production of Aluminum

India is a largest producer of bauxite in South Asia. There are 8 aluminum smelting plants in the country located in Orissa, West Bengal, Kerala, U.P., Chhattisgarh, Maharashtra and Tamil Nadu in 2004, India produced over 600 million tons of aluminum.

(c) Chemicals Industry

It is one of the oldest, diversified and fastest growing industries of India. It is the 3rd largest in Asia and occupies the 12th place in the world in term of its size. It comprises both large and small scale manufacturing units.

1. **Inorganic Chemicals:** Includes sulphuric acid (used to manufacture fertilizers, synthetic fibres, plastics, adhesives, paints, dyes stuffs) nitric acid, alkalies, soda ash (used to make glass, soaps and detergents, paper) asn caustic soda. These industries are widely spread over the country.
2. **Organic Chemicals:** Include petrochemicals which are used for manufacturing of synthetic fibres synthetic rubber, plastics, dye-stuffs, drugs and pharmaceuticals.

Importance of Chemical Industry

1. **Employment:** Chemical industry is one of the major sources of employment for large number of skills as well as unskilled workers.
2. **Foreign exchange:** Export of chemicals and chemical products brings foreign exchange to India.
3. Reduction of pressure on land: Chemical industry reduces pressure on land by providing employment to workers.
4. **Development of agriculture:** Chemical industry supplies pesticides and weedicides to agriculture. This has helped in the development of agriculture as these control harmful insects and weeds.
5. **Contribution to G.D.P. and national income:** It contributes 3% of the G.D.P. It also contributes 20% of the excise revenue to the government.

(d) Fertilizer Industry

There are 57 fertilizer units manufacturing nitrogenous and complex nitrogenous fertilizers: 29 for area and 9 for producing ammonium suphate as a byproduct and 68 other small units produce single superphosphate. At present there are 10 public sector undertakings and one in cooperative sector at Hazira in Gujarat under Fertilizer Corporation of India.

Producing States: Before the Green revolution industry was concentrated only few states but with the success of the Green Revolution it spread to most of the agricultural states.

Production: The Fertilizer Industry is centered around the production of nitrogenous fertilizers, phosphatic fertilizers and ammonium phosphate and complex fertilizer which have a combination of nitrogen, phosphate and potash.

Problem of Industry

1. There is shortage of raw material especially that of potash.
2. Prices are controlled by the government.

(e) Cement Industry

Cement is most advanced and important industry of India. The first cement plant was set up in Chennai in 1904 and since then industry has expanded at a constant rate. After the complete decontrol of price and distribution in 1989 and introduction of other policy reforms, cement industry has made strides both in production and process technology.

Importance of Industry

1. Cement is essential for all construction activities.
2. It earns valuable foreign exchange. Improvement in quality of Indian cement has found its ready markets in Bangladesh, Indonesia, Malaysia, Nepal, Middle East and Africa.

Requirement of the Industry

1. Limestone, Silica, alumina, gypsum and coal are the main raw materials required for its production.
2. Industry needs cheap power and transportation.

(f) Automobile Industry

Automobile industry is another fast growing industry of India. Since 1992 the industry has shown a very high percentage of growth rate due to following factors.

1. Automobile industry was delicensed in 1991 i.e. no licence is required for setting up any unit for manufacturing.
2. 100% foreign Direct Investment is permissible.
3. Due to loan and other finance facilities demand has risen many times.
4. Industry provides vehicles like trucks, cars, motorcycles, scooters etc.
   At present, there are 15 manufactures of passenger cars and multiunility vehicles, 9 of commercial vehicles, 14 of the two and three-wheelers.

ELECTRONICS INDUSTRY

This industry covers a wide range of products including television sets, transistor sets, telephone exchanges, cellular telecom, paging, computers and varied equipments for posts and telegraph, defence, railway and meteorological departments. India has made significant progress in electronic and computer technology. From 1996-97 to 2001 – 02 the industry grew by a factor of over three times. Bangalore is the largest centre of electronics goods production and is rightly termed as the Electronic Capital of India. The other major producing centre are Hyderabad, Delhi, Mumbai, Chennai, Kolkata, Kanpur, Pune, Lucknow, Jaipur.

The software has emerged as the major industry in the field of electronics. Software exports have become an important part of India's exports. Government of India has established 18 Software technology Parks which provide single window service and high data communication facility to the software experts. India's success in software has been built on the foundations of public investments in human capital, outward orientation in policies and a highly competitive private sector industry.

Importance of IT Industry

1. It has provided employment to over one million people.
2. This industry is major foreign exchange earner.
3. It has helped in the growth of service sector.

(a) Industrial pollution and Environmental Degradation

1. **Air pollution:** The smoke emitted by the industries pollute air and water very badly. Air pollution is caused by the presence of a higher proportion of undesirable gases, such as carbon monoxide and sulphur dioxide. Air-borne particulate materials consists of both solid and liquid particles. Dust, fume, mist, spray and smoke contain both types of particles. Human – made sources of pollutants are normally industrial and solid wastes. Air pollution affects human health, animals, plants, materials and the atmosphere.
2. **Water pollution:** Sources of water pollution are numerous. Most important are the industrial effluents that are discharged into rivers. They are both organic and inorganic. Coal, dyes, socaps, pesticides, fertilizers, plastics and rubber are some common pollutants of water. The principal industries which create water pollution are paper pulp, textiles, chemical, petroleum, refining, tannery and electroplating. Industrial wastes containing toxic metals pollute land and soil.
3. **Noise pollution:** Unwanted loud noise is also pollution. It arises primarily from industry and means of transport. Industrial noise, particularly from mechanical saws and pneumatic drills, is unbearable and is a nuisance to the public. Noise pollution can cause hearing impairment, increased heart rate and blood pressure and other physiological effects.
4. **Thermal and Nuclear pollution:** Thermal pollution occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling. Wastes from nuclear power plants nuclear and weapon production facilities cause cancers, birth defects and miscarriages. Soil and water pollution are closely related. Dumping of wastes specially glass, harmful chemicals, industrial effluents, packaging, salts and garbage renders the soil useless. Rain water percolates to the soil carrying the pollutants to the ground and the ground water also gets contaminated.

(b) Control of Environmental Degradation

Though industrialization is must for economic development of a country but the industrialization is also one of the major responsible for environmental degradation. There is urgent need to tackle this problem. Following are some of the methods to control industrial pollution.

1. **Use of recycle under:** Contaminated water is major sources of pollution. Water pollution can be checked by minimizing use of water for processing by reusing and recycling it in two or more successive stages.
2. **Rain water harvesting:** Harvesting of rain water should be encouraged to meet water requirements.
3. **Proper water treatment:** Treating hot water and effluents before releasing them in rivers and ponds. Treatment of industrial effluents can be done in three phases
   (i) **Primary** treatment by mechanical means. This involves screening, grinding, flocculation and sedimentation.
   (ii) **Secondary** treatment by biological process.
   (iii) **Tertiary** treatment by biological, chemical and physical processes.
4. **Control of air pollution:** Air pollution can be checked by reducing particulate matter. Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators, fabric filters, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories.
5. **Noise pollution:** Noise pollution created by industries can be controlled by using better design equipment.

PRACTICE SHEET

1. Jute mill was established in 1855 at Rishra near _____
(A) Mumbai (B) Delhi (C) Kolkata (D) Chennai

2. Tata Iron and Steel Company at Jamshedpur was established in the year _____
(A) 1911 (B) 1907 (C) 1909 (D) 1903

3. First Cotton mill was established in _____
(A) Mumbai (B) Delhi (C) Kolkata (D) Chennai

4. In Gujarat _____ is called as 'Denim city of India'
(A) Vadodara (B) Ahmadabad (C) Rajkot (D) Surat

5. India holds _____ place in production of jute and _____ place in exporting of jute.
(A) 2,1 (B) 1,2 (C) 2,2 (D) 1,3

6. Jute Industry in India is mainly concentrated to which state
(A) Orissa (B) West Bengal (C) Haryana (D) Gujarat

7. _____, _____, _____,_____ are the types of silk produced in India
(A) Mulberry, Eri, Tasar, Munga (B) Tasar, Munga, Anaphe, Fagara
(C) Coan, Mussel, Mulberry, Munga (D) Mussel, Spider. Eri, Tasar

8. Maximum woolen mills are in _____
(A) Gujarat (B) Maharashtra (C) Punjab (D) Madhya Pradesh

9. After reaping the crop of sugarcane, it has to be squeezed within _____ so that amount of water is not reduced otherwise its sugar content will decrease.
(A) 2 Days (B) 1 Day (C) 3Days (D) 5 Days

10. Which two states are the largest producer of sugar cane in India
(A) Maharashtra and Gujarat (B) UP and Bihar
(C) UP and Maharashtra (D) Madhya Pradesh and Karnataka

11. Which of the following cities is called cotton polis of India for cotton textiles
(A) Indore (B) Mumbai (C) Ahmadabad (D) Nagpur

12. Which Indian city is well known as " Silicon Valley" of India
(A) Delhi (B) Bangalore (C) Jaipur (D) Hyderabad

13. Where is the mini steel plant located in Gujarat
(A) Kandla (B) Okhla (C) Dwarka (D) Hajira

14. First Copper refining unit of India was founded by Indian Copper Corporation at Ghatshila in ___
(A) Rajasthan (B) Madhya Pradesh (C) Orissa (D) Jharkhand

15. First chemical fertilizer factory of India was established in _____ in _____
(A) 1904, Gujarat (B) 1919, Maharashtra (C) 1906, Tamil Nadu (D) 1913, Andhra Pradesh

16. Largest producer of cement in the world is _____
(A) Brazil (B) USA (C) China (D) Russia

17. Bharat Electronics Limited was established in _____ in _____
(A) 1945, Mumbai (B) 1956, Banglore (C) 1962, Delhi (D) 1975, Vadnagar

18. _____ industry is also known as 'Sunrise Industry'
(A) Cement (B) Plastic (C) Chemical (D) Aluminum Refining

19. The first factory in India to produce iron was established in _____
(A) Bihar (B) Tamil Nadu (C) Uttar Pradesh (D) Maharashtra

20. SAIL stands for
(A) Steel Authority of India Limited (B) Steel and Aluminum Industry Limited
(C) Steel Authority and Industry Limited (D) Steel and Iron Limited

21. Salem Iron and Steel Plant is located in which of the following state
(A) Tamil Nadu (B) Karnataka (C) Andhra Pradesh (D) West Bengal

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
C	B	A	A	B	B	A	C	B	C	B	B	D	D	C	C	B	B	B	A	A

7–TRANSPORTATION, COMMUNICATION & TRADE

- The movement of people and goods from one place to another is called transportation. In general terms. The process of going from one place to another is known as transportation. The transportation has an important contribution in economic and physical progress.
- Due to transportation, the exchange of goods and people is made possible. Distant places can be linked through transportation. National integration and processes like industrialization and urbanization are made possible due to transportation.
- Earlier there was less interaction among people in comparison with today. Now people make use of communication equipment more and more for exchanging messages.
- Mails- telephones, cell (mobile) phones and internet services are being used widely. India has launched satellites for space research. This has improved the telecommunication services very much.
- Trade is the tertiary economic activity. Trade encourages production activity. No country can ever be self reliant totally.
- So it has to make exchanges with other countries, e.g. The agro-products of India are sent to middle-eastern countries and we import date-palms and mineral oil from them.

TRANSPORTATION

- Earlier man used to live a wanderer's life, but after the invention of agriculture, he started living a steady life. Earlier he used to carry his things himself.
- In due course, he started using animals as beast of burden with the activities of agriculture and animal husbandry. In modem period, auto vehicles are used more than animals in transportation.
- The types of transportation are affected by factors like location, climate, relief, human population etc. Moreover, some cultural factors like technical development, economic development, market and capital investments, political decisions etc. also affect the transportation.
- Transportation is carried out by roads and railways in plain region. In mountainous regions, animals and man are used (Yak in the interim places in Himalayas) for transportation of goods.
- During, ascent to Everest, Bhotia people, who are better mountaineers also, worked as labourers to carry goods. Besides, elephants, mules and horses are used in the mountainous forests. Camel is best for transportation in desert.

ROADS OR LAND TRANSPORTATION

- Roads were important in transportation since ancient times. There was a road network of highways during the rules of Samrat Ashok and Chandragupta Maurya.
- Roads are complimentary to the railways, sea routes and air routes. Most important characteristics of roads are the widespread field of its services, safety of goods, saving of time and cheap and multi-services.
- The only option to connect goods, man and the area is roads. The road system of India is third largest in the world after united states of America and China.

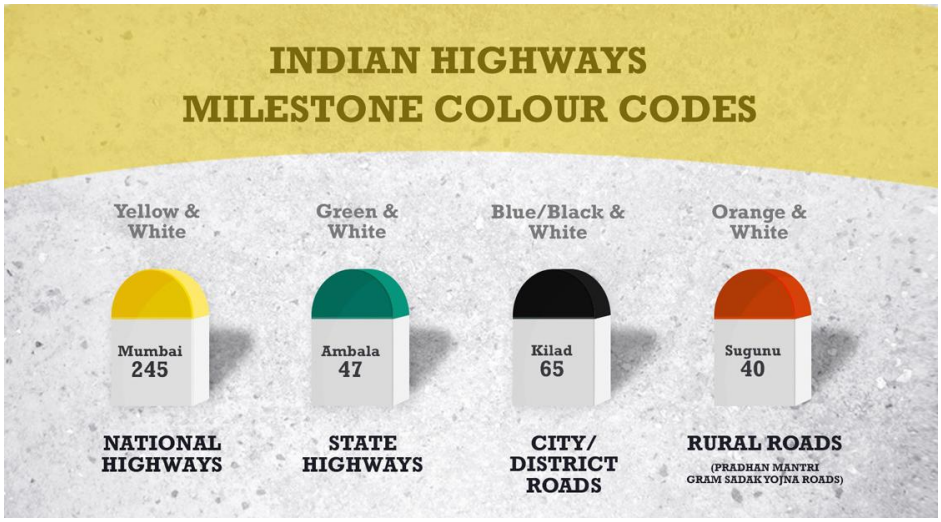
THINGS TO KNOW

Roadways from about 83%, railways *9%,* airways 6% and waterways form about 2% of the total national transportation system.

CLASSIFICATION OF INDIAN ROADWAYS

(1) National Highway (2) State Highway (3) District Roads
(4) Village (Approach) Roads (5) Border Roads

(1) National Highway: Highways are important not only from economic development point of view but also from the safety point. The responsibility of the construction of these highways rests with The Central Government.



- The State capitals, large industrial and commercial cities and major ports are inter-connected by these highways. These roads also connect India with neighbouring countries like Myanmar, Pakistan, Nepal, Bhutan and China.
- National Highway No. 7 is the longest highway of the country and it extends between Varanasi with Kanyakumari. Four metro cities Delhi, Mumbai, Chennai and Kolkata will be interlinked by Golden Quadrilateral Highway System.
- National Highway No. 27, 41, 47, 141, 147 etc. pass through Gujarat. These numbers are changed by the Government of India in 2011.
- Considering from total population of view Chandigarh, Pondicherry, Delhi, Goa states have more number of national highways.
- Next come the states of Mizoram, Arunachal Pradesh, Meghalaya, Manipur etc. The total length of national highways is less in those states like Uttar Pradesh, West Bengal, Bihar, Madhya Pradesh, Rajasthan, Maharashtra and Gujarat where there is more population.

(3) State Highway: State highways are important for trade and industries. These roads are connected to all districts and the national highways. The responsibility of construction and maintenance of these roads lies with the State Governments.

(3) District Road: These Roads connect villages and the main cities with the district headquarters, and the headquarters of talukas and districts.

- Earlier, these were all unmetalled roads, but now most of them are converted into metalled roads. These are maintained by district panchayats.

(4) Village Roads: The construction and the maintenance of these roads is done by Gram Panchayat. These roads which connect the roads passing by the villages are unmetalled and so these are not useful in rainy season.

- Under Pradhan Mantri Gram Sadak Yojana, attempts are made to improve the village transportation. Under the scheme, a large scale work is undertaken to convert these roads into metalled roads.

(5) Border Road: Border Road organization was established in **1960.** This organization constructs roads in the border area for the defence of the country and for protection.

- It undertakes work like construction of roads in inaccessible remote area and its maintenance, to clear snow etc.

Border Roads Organization

EXPRESSWAYS

- Expressways are also called Drut Gati Morg. Vehicles can be driven without any obstruction on these highways of four or six lanes.
- Overbridges are constructed along these highways wherever there is a railway crossing or a cross road. Ahmadabad- Vadodara Express Highway in Gujarat is an example of this.
- A toll tax has to be paid for using this highway. Roads have been constructed connecting all major ports of the nation.

TRAFFIC PROBLEM

- Over bridges, bypass roads and ring roads around the cities are constructed to avoid the traffic problem in larger cities.
- With increasing encroachments along the roads, traffic jam scenes have become very common during peak hours in cities. Traffic jam is also caused due to marriage processions, social processions and other processions

SOME SUGGESTIONS TO REMOVE TRAFFIC PROBLEMS

- Do not overtake unless it is absolutely necessary.
- Two wheelers like cycle, scooter etc. should be driven only on the left side of the road.
- Do not talk in cell phones (mobiles) while driving. If it is inevitable, show the sides; stop the vehicle, on the left side of the road and then only talk in the cell phone.
- Allow the vehicles 108, ambulance and fire brigade to pass first.
- Do not create noise by unnecessary honking.
- Follow the traffic signals.

RAILWAY

- Indian railways is the largest national institution. Indian Railways is the main medium of transportation to co-operate in the economic fields of India such as agriculture, industries, trade, service etc.
- It has a major contribution in national security, peace, management, to establish cultural and geographical unity and to maintain it. India ranks first in Asia and second in world in railways.

PROGRESS OF RAILWAYS

First railway in India started in 1853 between Mumbai and Thane. There are three types of railway in India. These are: Broad Gauge, Metre gauge and Narrow gauge.

- The metre gauge and narrow gauge railway tracks are being converted into broad gauge in recent times. This is a big achievement for Indian railways. Due to different gauges, lot of time was wasted in traveling, and transporting passenger goods. So much money was wasted.
- Railway network is more dense in the States which have plain region, dense population, industrial development, intensive agriculture and have rich mineral fields. Large cities like Kolkata, Delhi, and Jaipur have Metro Rails also.
- Work has started on the metro rail project between Ahmadabad and Gandhinagar. Mono rail has proved very important to connect Mumbai with its suburbs.

- Konkan Railways has provided a good example by laying down railway tracks through Tunnels in the mountainous regions which were highly inaccessible.
- The route between Dibrugadh and Kanyakumari is the longest railway route in India which is known as Vivek express. In Gujarat, Ahmadabad is the biggest railway station.
- Other important railway junctions are Mahesana, Viramgam, Rajkot, Vadodara, Surat, Anand etc.

WATERWAY

- Water transportation was carried out in India since ancient times. All transactions were done through waterways when roads and railways did not exist.
- Compared to roads and railways the waterways are cheaper, because no expense is incurred in their construction or maintenance.

There are two types of waterways in India: **(1) Internal waterways (2) Oceanic Waterways.**

Internal water transportation services are developed more in Assam, West Bengal and Bihar states of North- East India, while in South India also, internal waterways are used more for services.

Transportation by river-canal: West Bengal, Assam, Tamil Nadu and Bihar are important states as river waterways. Steamers and large boats use these permanent waterways.

To maintain the internal water transportation, the Government has recognized the following waterways as National water ways.

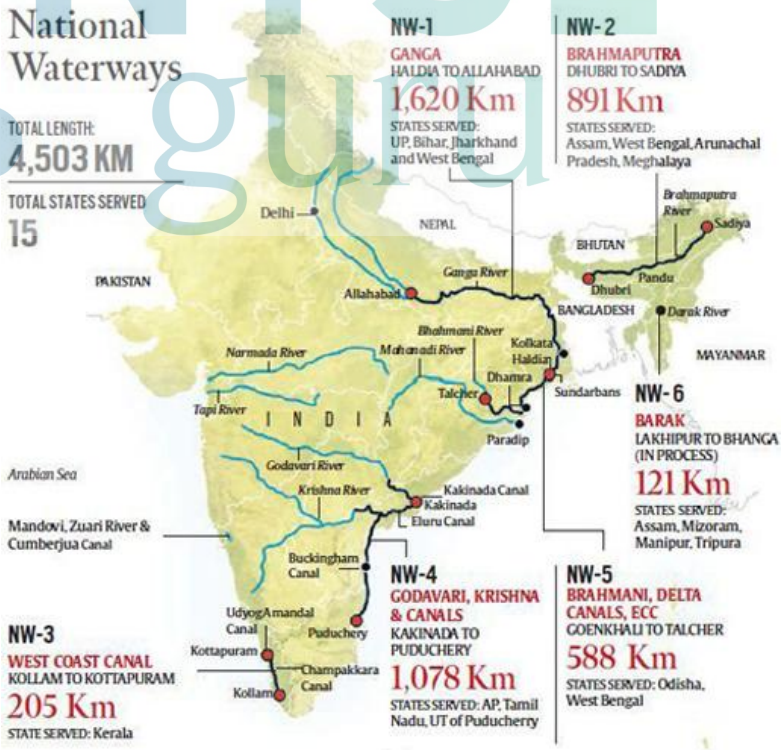
National waterway 1 Ganga River: Haldia-Allahabad 1620 Km

National Waterway 2 Brahmaputra River: Dhubri-Sadia 891 Km

National Waterway 3 West Coast Canal: Kollam-Kottapuram 250 Km

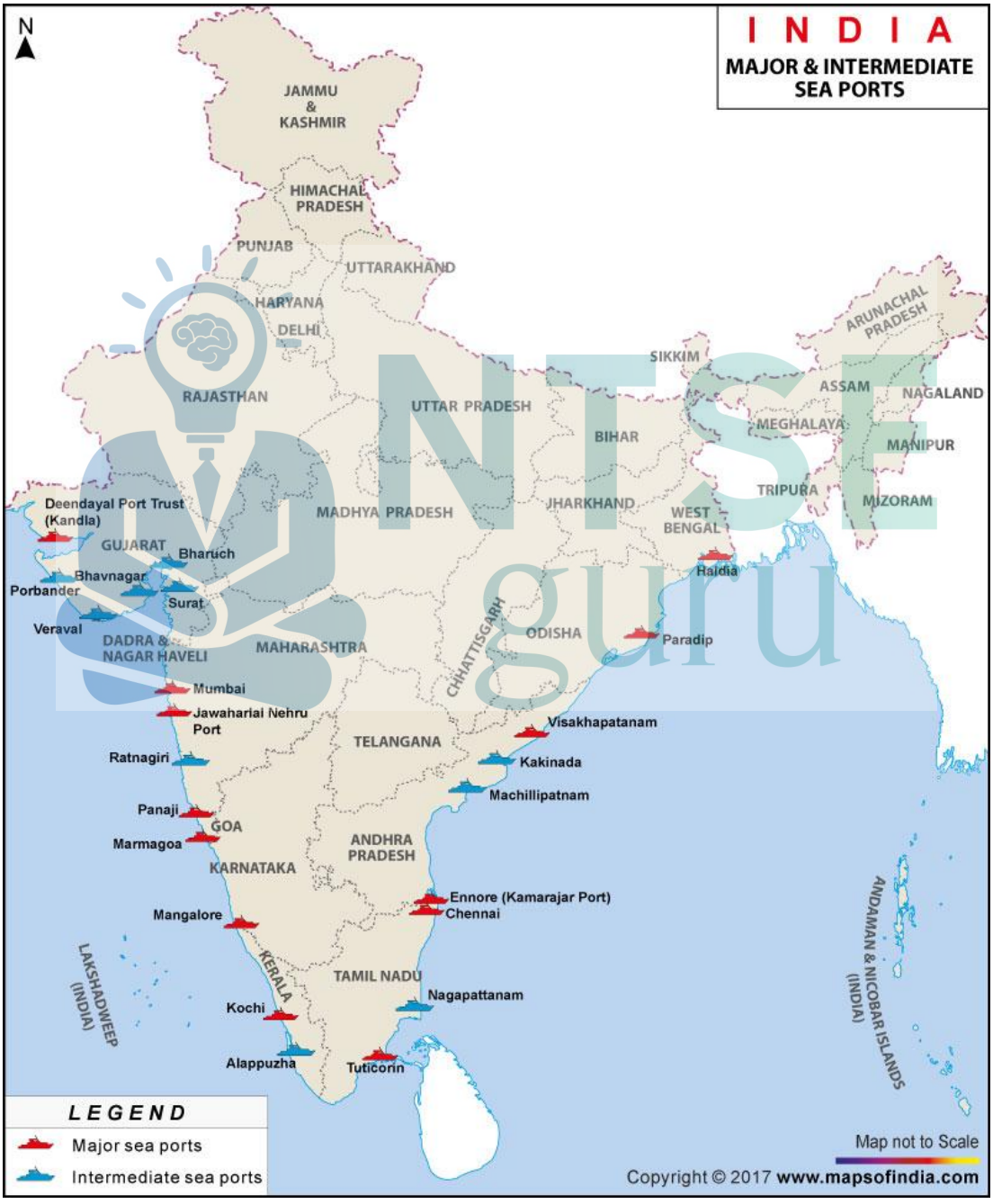
National Waterway 4 Godavari Krishna River: Kakinada - Pondicherry 1078 Km

National Waterway 5 Brahmani River: Goenkhali-Talcher 588 KM



Oceanic waterway: India has about 7516 km long coastline. Along this coastline, there are 13 major and about 200 minor ports. After shipping corporation of India was founded, there has been much development of national and international waterways.

- Kandla, Mumbai, Navasheva, Margao, New Mangalore and Kochi ports are located on the western coast, While Kolkata, Haldia, Paradwip, Vishakhapattanam, Chennai, Tuticorin etc. are main ports of eastern coast.
- Gujarat has got a long coastline of about 1600 km. Kandla is the largest port of Gujarat. Bhavnagar is the only port having automatic lock-gate system.
- Porbander is a free port for the entire year. Other important ports are Veraval, Sikka, Pipavav, Navlakhi, Mundra, Poshitra, Okha and Hajira A project is undertaken to develop Poshitra port.



AIRWAYS

- It is the speediest and costliest mode among all types of transportation. Airways are used to reach distant places, remote and dense forests and to reach those places which are not accessible easily by road.
- In India, the weather remains favorable for aviation almost throughout the year. In present day, airways are used more and more.
- The airways services in India were as air mail services between Allahabad and Naini. It was run by a private company. Today "Air-India" and other private companies provide air transportation services.
- Today Airport Authority of India carries out the management of 127 airports which include 15 international, 87 domestic, 25 civilian airport terminals.
- There are international airports such as Kolkata, Mumbai, Chennai, New Delhi, Bangalore, Hyderabad, Ahmadabad etc. Pavanhanse Helicopters provides helicopter services to O.N.G.C. and to Government.

OTHER MEANS OF TRANSPORTATION

- Pipelines are used to transport liquid material such as water, mineral oil, natural gas and other liquids/ An oil pipeline exists between Naharkatia of Assam to Nunmati-Barauni. One pipeline goes from Kalol To Koyali in Gujarat and from Salaya to Mathura.
- A pipeline has been installed from Bombay High up to Mumbai coast. In Gujarat, Natural Gas is transported through pipeline to Khambhat-Dhuvaran-Koyali-Ahmedabad.
- Cooking gas is provided through pipelines to Surat, Bharuch, Vadodara, Ahmedabad, Jamnagar, Morbi, Rajkot, Gandhinagar cities.

ROPEWAY

- In mountainous regions, the summits are connected by ropeway to transport goods and passengers.
- There are about 100 ropeways in India. Ropeways are seen in Darjeeling, Kullu-Manali, Cherrapunji, Haridwar etc. in North India and in the mountainous regions of Chennai and Malai.
- The ropeway services in Gujarat are available at Pavagadh, Saputara and Ambaji. Work for a ropeway has started at Girnar in Junagadh.

COMMUNICATION

- The arrangement to send or to collect information from one place to another is called "Communication". The communication system has proved extremely useful in routine life for relief and rescue works at the time of natural hazards like flood, drought, cyclone, tsunami.
- The communication system plays an important role in the economic, social and cultural progress and for maintaining national integration and unity.
- In ancient times, messages were sent by playing the dhol (drum), by smoke, by pigeons and through other animals. In modem communication, mail services, telegraph, telephone, mobile telephone, smart phone and satellites have made the communication very speedy and easy.
- Science and technology have contributed very much in developing the field of communication. Today we can see all important events live.

Communication can be divided into two parts:

(1) Individual communication system **(2) Mass communication system.**

(1) Individual Communication system: Internet and smart phones are the effective among individual communication system. E-mail, E-commerce, exchange of currency etc. have become very fast due to internet.

Moreover, there has been a revolution in telecommunication through various applications on social media. Villagers also remain in live contact with people locally and in abroad.

(2) Mass Communication System: There are to mediums in mass communication system:

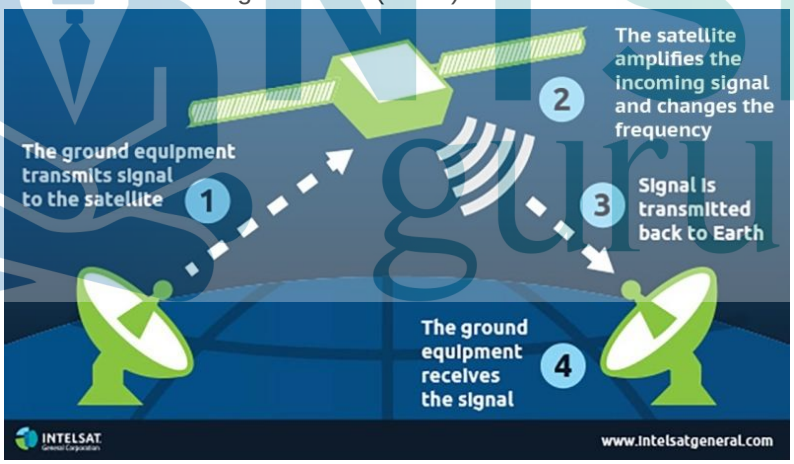
(i) Print media which includes newspapers, magazines, pamphlets.

(ii) Electronic Media which includes Akashwani and Doordarshan. Prasarbharti is the autonomous body for transmissions in the country. Its two divisions are Akashwani and Doordarshan.

- There are 415 radio stations in the country today. It broadcasts programmes in 23 languages. It can be used conveniently in the most remote area also.
- It becomes an important unit for contacts at the time of natural disasters. With use of satellites, Doordarshan news, weather reports and programmes on entertainment and education are also telecast. Today, many private channels also have started programmes like Doordarshan.

SATELLITE COMMUNICATIONS

- Artificial Satellites have their own communication skills. But along with that, it also controls other mediums of communication.
- The Indian National Satellite (INSAT) satellites launched by India are multi-purpose systems, which is helpful to Doordarshan for the forecast of weather, cyclone and thunderstorms, warning for disasters, research and other telecasts.
- Besides, there has been a development of indigenous Polar Satellite Launch Vehicle (P.S.L.V.) through the Indian Remote Sensing Satellites (I.R.S.).



TRADE

India is a vast country. At some places, there are mountainous regions, coastal plains and deserts. Same type of diversity is seen in climate, vegetation, mineral resources and energy resources.

There are different crops in every region and also the difference in industrial output.

As a result, there are two types of trade systems in the country:

(1) Internal Trade and **(2) International Trade.**

Internal Trade: The commodities available in excessive quantity of one state is transported to another state and vice versa. This is known as Internal Trade.

- For example, Punjab produces more wheat, so it exports it to other States. But Punjab does not have a sea coast, so it gets its salt from Gujarat.
- Thus every state exports its products. The internal trade has developed in India due to this.

International Trade: The system in which different countries of the world export and import their requirements can be called International Trade. It is necessary to maintain trade balance in international trade, otherwise there would be a negative trade balance.

- If a country exports more than it imports, its trade balance is positive. This increases the reserves of foreign exchange of our country. If the imports exceed the exports, then the trade balance is negative.
- The currency value of that country which increases its export increases in international market and the currency value decreases in the international markets of those countries which increase their imports.
- After the Liberalization policy of 1991, there have been many changes in the international trade of India. In last few years, the trade balance of India is mostly negative. In order to make this trade balance positive, the government has started “Make in India”.
- Due to this, many foreign companies will produce their goods in India and will export them to foreign countries. Now we shall study the export-import trade of India.

IMPORT TRADE OF INDIA

- When the iron production in India is not sufficient, India imports iron and copper. The demand for petroleum mineral oil and lubricants is more for transportation and for keeping the machines active, these are imported.
- We also import machines, pearls and gemstones and edible oils as per our requirements. We import these things from U.S.A., Germany, Russia, Myanmar, Iran etc.

EXPORT TRADE OF INDIA

- Only a limited portion of the production is allowed to be exported, so that its cost may not increase within the country.
- We import raw materials for few things, manufacture some goods from them and then export them, Indian export includes iron ore and minerals, engineering goods such as cycle, fans, sewing machines, cars, railway coaches, computer software etc.
- We also export chemicals and the things related to them, gem stones, hide and leather goods, cotton textile, fish and its products, handicrafts, tea-coffee, jute and its products and readymade clothes.

HISTORY

1 – HERITAGE OF INDIA

MEANING OF CULTURE

- ✓ Culture is the sum total of habits, values, customs, traditions and life style of man, so it can also be called as a way of life.
- ✓ It includes changes that take place in our public life, rules of society and influence of other societies.
- ✓ Culture grows due to mutual exchange and changes brought about by mingling of people of different races, caste and tribes.People's food, clothes, dwelling, social life, ways of expression, means of entertainment, communication method are decided by culture.
- ✓ Every generation protects its cultural heritage and after nurturing it, hands it over to succeeding generations. Hence there is continuity and progress of culture.
- ✓ When it is passed on from one generation to another it becomes heritage.It influences the social, economic, religious and cultural aspects of human life.
- ✓ It also includes architectural monuments, sculptures, literature, art, science, mathematics and religion.
- ✓ Indian Culture is more than 5000 years old and is still growing.
- ✓ Many foreigners were attracted to the prosperity of India and came to trade and even- settled here. They also mingled with Indian culture and added to it.
- ✓ In the beginning of any auspicious ceremony, Bharatvarsha, Bharatkhand, Jambudwip and Arayavarta words are used while taking a resolution.

NATURAL HERITAGE

- ✓ The result of a close relationship among nature, environment and human-life is natural heritage.
- ✓ India is gifted with the natural boundaries- the Himalayas in the North and seas in the East, West and South.
- ✓ It includes mountains, forests, deserts, rivers, seas, flora and fauna.
- ✓ The Jataka Kathas and Panchtantra stories tell us about our natural heritage.
- ✓ There is close relation between nature and classical music as several classical ragas are based on 'Prahar' (period of a day) and 'Ritu' (season).

LANDSCAPES

- ✓ The Aryans considered the mountains to be holy amongst various elements of nature.
- ✓ The Himalayan range has been a part of Indian heritage.
- ✓ The mountains give us useful vegetation, minerals, water and also pilgrimage places.

RIVERS

- ✓ Rivers are the source of water for drinking, domestic use and irrigation etc.
- ✓ They provide a source of inspiration to painters, photographers and poets.
- ✓ Rivers like Ganga, Yamuna, Saraswati, Sindhu, Kaveri, Narmada and Godavari have influenced people of India.

VEGETATION

- ✓ Harde, amla, baheda, aloe-vera, ardusi and neem are medicinal plants.
- ✓ Cereals, pulses, oil-seeds are eaten.
- ✓ Pipal, banyan and tulsi are considered holy and are worshipped.
- ✓ There are flowers like rose, lotus, jasmine, sunflower, champa which provide fragrance and beauty.
- ✓ Ayurveda, Naturopathy and Unani are medicine systems dependent on nature.

WILDLIFE

- ✓ India has a diverse wildlife like lion, tiger, elephant, rhino, leopard, fox, bear, deer and snakes.
- ✓ The Asiatic, lion is only found in Gir - Gujarat.
- ✓ From ancient times, animals are treated as vehicles of Gods and Goddesses.
- ✓ The wildlife and vegetation needs to be protected to maintain ecological balance.
- ✓ The figures of lion, horse and bull are in the national emblem.

CULTURAL HERITAGE OF INDIA

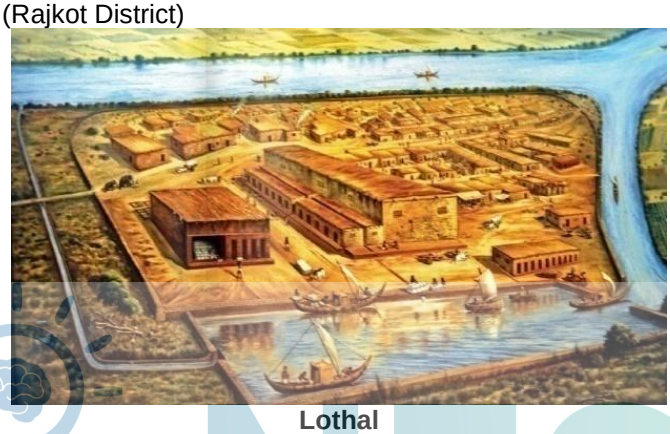
- ✓ Cultural heritage is a man-made heritage. India has a diverse and rich cultural heritage.
- ✓ Whatever is received or created by humans with skill, wisdom and art is cultural heritage.
- ✓ Indian culture has been enriched through exchange from many tribes that came to India like the Aryans, Kushans, Huns, Kshatraps, Arabs, Mughals, Turks and even the Europeans like the British and the French.
- ✓ Our cultural heritage has been contributing to the world since pre-historic period.
- ✓ The art of architecture and sculpture of India is 5000 years old and the remains of Indus Valley Civilization are an evidence of this like idols, sculpted figure of man with a beard, a metallic figure of a woman dancer, various figures of Gods and Goddesses, animals and toys.
- ✓ We also have the sculptures of a bullock or a lion on an inverted lotus from the Mauryan Era, the statues of Jain tirthankars, the idols in the caves of Ellora built of Rashtrakuta dynasty.
- ✓ This uniqueness makes us proud of our heritage.
- ✓ Our cultural heritage also includes architectural monuments like palaces, buildings, sculptures, stupas, viharas, chaityas, temples, mosques, tombs, forts and gates.

- ✓ Even historical places of our freedom movement like Sabarmati Ashram, Dandi, Delhi, and Shantiniketan are a part of our cultural heritage.
- ✓ Besides these even language, script, literature, art, science, mathematics and religion is a part of our cultural heritage.

CULTURAL HERITAGE OF GUJARAT

The places having cultural, legendary places and archaeological importance are

Lothal (DholkaTaluka),
Dholaveera (Kutch District),
Rangpur (LimbdiTaluka in Surendranagar District),
Rozadi or Shrinathgadh (Rajkot District)



Lothal

The places of cultural, legendary and religious importance are:

- Sun-temple at Modhera
- RudraMahalaya Temple at Siddhpur
- Victory Tower at Vadnagar
- Stone inscription of king Ashoka at Junagadh
- Parsi Agiyari at Navsari
- Gate of Champaner Fort
- Rajmahal(palace) of Vadodara
- Mansar Lake of Viramgam
- Jama Masjid, Shaking Towers, Sidi Sa yed Grill, Hathisinh temple of Ahmadabad
- Tomb of Mohabat Khan
- Shiv Temple at Somnath (one of the 12 Jyotirlingas)
- Temples of Krishna at Dwarka, Dakor (Kheda District) and Shamlaji (Aravalli District)
- Temples of goddess Amba at Ambaji in North Gujarat (Banaskantha District)
- Kite festivals, Kankaria Carnival (Ahmadabad)
- Tana-Riri festival (Vadnagar),
- Rannotsava in Kutch
- Sahastralinga Lake of Patan
- Bahuchara at Bahucharaji (Patan District)
- Poloforest (Vijaynagar- Sabarkantha district)

JAIN AND BUDDHIST CAVES

Khambhalida , Koteshwar, Vadnagar, Jhagadiya,Taranga, Talaja, Dhank

FAIRS OF GUJARAT

CULTURAL FAIRS

- **Modhera Fair**
  Place - Sun Temple Modhera in Mehsana District. It is held in the third week of January for three days. It showcases different classical dances.
- **Tarnetar Fair**
  Place - Tarnetar in Surendranagar. It is held in the first week of Bhadarva (August -September).
- **Madhavpur Fair**
  Place - Madhavpur in Porbandar district. It is held in the first half of the month of Chaitra (March-April) from 9 to 13.
- **Vautha Fair**
  Place - Dholka- Ahmadabad District. It is held on Poonam (full moon day) in the month of Kartak (October- November).
- **Dang Darbar Fair (tribal fair)**
  Place - Ahwa in Dang district. It is' held in the month of Fagun(February-March) on the full moon day.
- **GolGadheda Fair**
  Place - Jeshavada in Dahod District. It is a tribal swayamvar and is held for five days after the festival of Holi.
- **Bhanguriya Fair**
  Place - ChhotaUdepur and Kavant. It is held in February-March from the day of the festival of Holi to Rang Panchami (fifth day)

Muslim Fairs

- **Bhadiyad Fair**
  Place - Bhadiyad in Ahmadabad District. It is an Urs held in the seventh Islamic month of Rajab on the dates 9, 10 and 11.
- **Miradatar Fair**
  Place - Unava in Unjha District, it is held in the seventh Islamic month of Rajab on the date 16 to 22.

Religious Fairs

- **Bahucharaji Fair**
  Place - Bahucharaji in Patan District. It is held at the goddess Bahuchara temple in the month of ChaitrasudPoonam (April-Full moon day).
- **BhadarviPoonam Fair**
  Place - Ambaji in Banaskantha District. It is held in honour of goddess Amba on Poonam (full moon day) of Bhadarvo (August - September).
- **Shamlaji Fair**
  Place - Shamlaji - Aravalli District. It is held near the Shamalaji temple in the month of Kartiksud 11 to Amas (no moon day). It is held in October-November for five days. The Shamlaji temple is dedicated to Lord Krishna. Tribals come to buy household items.
- **BhavnathMahadev Fair**
  Place - Girnar in Junagadh District. The fair begins in the month of Magh (February-March) vad 9 to 12. It continues for a period of 5 days from Shivratri and the fair is dedicated to Lord Shiv.

- **Naklang Fair**
  Place - Bhavnagar. It is held on no moon day (amas) in the month of Bhadarva (August- September) at the Shiv Temple near the sea.
- **KartikPoonam Fair**
  Place - Somnath (GirSomnath District). It is held on full moon in the month of Fagun (February-March) dedicated to Lord Shiva.

INDIA: LAND AND PEOPLE ANCIENT TRIBES OF INDIA

1. NEGROID (HABSI)

- ✓ They were the most ancient tribe according to historians and they came to India from Africa via Baluchistan.
- ✓ They were also called Habsis.
- ✓ They were black in colour, had curly hair and were 4 to 5 ft in height.

2. AUSTRAIOID (NISHAD)

- ✓ They came from South-East Asia.
- ✓ They were black, had broad head, flat nose and were short in height.
- ✓ Their origins are seen in Kol, Munda and Khasi tribes of Assam, Andaman and Nicobar Island
- ✓ They gave knowledge of clay utensils, woven cloth and religious beliefs.

3. MONGLOID (KIRAT)

- ✓ They came from China via Tibet.
- ✓ They were yellow skinned, flat faced, had chubby cheeks and almond shaped eyes.
- ✓ They settled in Bhutan, Bengal, Assam and Sikkim (BAS).

4. ALPINE/DINARIK/ARMENOID:

- ✓ They migrated from Central Asia.
- ✓ They settled in Gujarat, Bengal, Orissa and Maharashtra (GBOM).

5. DRAVIDIANS

- ✓ Dravidians were the direct descendants of Stone Age Civilisation and the creators of Mohenjo-Daro culture.
- ✓ They originally belonged to India and were first settled in the North. However, due to the dominance of the Aryans they shifted to South India.
- ✓ They gave us the concept of mother as Goddess and father as God so the thought of Parvati and Shiv as mother and father god developed.
- ✓ They have given the tradition of worshipping Nature and animals.
- ✓ They also passed on the method of worshipping with 'Dhup', 'Deep' and ‘Aarti’.
- ✓ They had a matriarchal (maternal) system of family.
- ✓ They gave us languages like Kannada, Malayalam, Tamil and Telugu (KMTT).
- ✓ They have also gifted the art of building boats and rafts, weaving, spinning and dyeing.
- ✓ Later there were inter-caste marriages between the Aryans and Dravidians.
- ✓ The Aryans accepted the deities of the Dravidians and worshipped them as a part of their culture.

6. ARYANS

- ✓ The Nordic Aryans created the Aryan civilisation in India. They first settled in North West part of India.
- ✓ They were more developed than the other tribes.
- ✓ The region where they settled had seven rivers so it was called ‘Sapta Sindhu’.
- ✓ The densely populated areas of Aryans were called Aryavratas.
- ✓ Aryavrata extended up to Mithila (Bihar) in the East and up to Vidhyachal in the South during post Vedic period.

- ✓ The region was also called Bharatbhumi, Bharatkhand and Bharatvarsha as the Bharat tribe among them was the most powerful.
- ✓ The Hindus were called Aryans in ancient times.
- ✓ They loved nature and composed hymns to worship trees, rivers, mountains, wind and rain. They performed yagnas and recited the verses of the Vedas.

PRESERVATION AND CONSERVATION OF OUR CULTURAL HERITAGE

- ✓ The Indian heritage is a result of the development in the social, economic, political and cultural fields by Indians over a period of thousands of years. The natural resources provide opportunity for progress in all the fields.
- ✓ Our culture needs to be protected and preserved. In our Constitution, the fundamental duties of Indian citizens towards preservation of culture are mentioned in Article 51-A- 6/7/9 as follows.
- ✓ Every citizen needs to understand the importance of our harmonious culture, prosperity and preserve it.
- ✓ We should maintain the purity, holiness and beauty of these places considering it to be our moral duty. One needs to maintain forest, tanks, rivers, ponds, the wild animals and birds and have compassion for all the living creatures.

PRACTICE SHEET – 1

1. What has been realised from Indian culture?
(A) Sat, Chit and Anand (B) Sat, Moksha and Anand
(C) Sat, Chit and Dhairya (D) Sat, Guru and Anand

2. Which of the following are incorrect with regard to culture?
(A) Culture means way of life.
(B) Culture is made up of changes occurring in public life.
(C) Culture is a total of a customs, habits, tradition and values.
(D) Culture is close relation between nature, human and environment.

3. Indian prosperity attracted foreigners to.
(A) Trade in India (B) Settle in India
(C) Mingle with Indian culture (D) All the above

4. How old is the art of sculpture in India?
(A) 5,000 (B) 7,000 (C) 8,000 (D) 2,000

5. Indian culture became rich by_____.
(A) Exchange between different races (B) Expanding area of Indus Valley
(C) Praying to Gods (D) Creating palaces

6. _____is an ancient figure of the Mauryan era. (Which one is false?)
(A) Figure of bullock (B) Figure of lion
(C) Figure of tiger (D) Inverted lotus

7. The statue of Gautam Buddha in a _____ pose is a part of our ancient heritage.
(A) Healing the sick (B) Meditative
(C) Leaving his palace (D) Preaching to his disciple

8. Which mountain range is a part of the Indian heritage since ancient times?
(A) Girnar (B) Himalayas (C) Vindhyachal (D) Cardamom

9. Which of the following does not fall into the category of wildlife?
(A) Elephant (B) Rhinoceros (C) Horse (D) Deer

10. The _____doesn't have the figure of lion in it.
(A) National Flag (B) Indian Currency
(C) Ashoka Pillar (D) National Emblem

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
A	D	A	A	A	C	B	B	C	A

PRACTICE SHEET–2

1. Which of the following monuments is not associated with Ahmadabad city?
(A) Jama Masjid (B) Shaking Minaret
(C) Tomb of Mohabat Khan (D) Sidi Saiyed grill

2. Read the conversation and identify the monument spoken about by the friends.
Smita: We had been to Modhera in the third week of January for a dance festival and we saw this beautiful monument.
Anjana: It was an excellent piece of art and architecture. I would like to see it once again.
Uma: For the first time I saw a temple dedicated to the Sun god.
(A) Sahastralinga (B) Sun Temple (C) Ambaji Temple (D) Rudra Mahalaya

3. Which of the following temple is a Jyotiriinga?
(A) Shamlaji Temple (B) Rudra Mahalaya Temple
(C) Dwarkadhish Temple (D) Somnath Temple

4. Which of the following temple is not dedicated to Shri Krishna?
(A) Dwarkadhish Temple (B) Somnath Temple
(C) Shamlaji Temple (D) Ranchodrai Temple

5. Match the temples in 'A' with the places where they are situated in 'B'–

A.	B.
1. Rudra Mahalaya	a. Dakor
2. Hathisinh	b. Siddhpur
3. Sun Temple	c. Ahmedabad
4. Ranchodrai	d. Modhera

(A) 1-b, 2-c, 3-d, 4-a (B) 1-c, 2-a, 3-d, 4-b (C) 1-b, 2-c, 3-a, 4-d (D) 1-b, 2-d, 3-a, 4-c

6. A stone inscription of Ashoka is found at _____ in Gujarat.
(A) Champaner (B) Vadnagar (C) Junagadh (D) Siddhpur

7. The famous Victory Tower is located at _____ in Gujarat.
(A) Champaner (B) Vadnagar (C) Junagadh (D) Siddhpur

8. Which of the following temples are dedicated to Goddesses?
(A) Bahucharaji and Ambaji (B) Bahucharaji and Shamalaji
(C) Hathisinh and Ambaji (D) Hathisinh and Shamalaji

9. They made clay utensils, wove cotton cloth and had great religious beliefs too. Who were they?
(A) Nishad (B) Armenoid (C) Khasi (D) Dinarik

10. The _____ were considered to be the most ancient people of India
(A) Negritoit (B) Alpine (C) Nishad (D) Dravidians

2 – CULTURAL HERITAGE OF INDIA: TRADITIONAL HANDICRAFT AND FINE ARTS

1. HERITAGE

- ✓ Heritage is what is passed on from one generation to another.
- ✓ Indian heritage is divided into cultural and natural heritage.
- ✓ The physical and mental characteristics that a child inherits from the parents by birth are known as 'genetic inheritance'.
- ✓ The estates, properties, assets that a child inherits from parents is called 'material heritage'.
- ✓ Whatever man creates or gets with his intellect and skill is generally called cultural heritage.
- ✓ Traditions, customs, language, life style, art and craft which is passed on from generations is cultural heritage.

2. CLAY WORK

- ✓ Clay work is an ancient craft of India.
- ✓ Man's life is associated with clay from cradle to graveyard.
- ✓ Before the invention of metals things made out of clay were used.
- ✓ Toys, pots, pitchers, earthen lamps, clay stove (chulha) and most of the kitchen wares were made of clay.
- ✓ Clay wares were made to store grains, milk, ghee, curd and butter milk.
- ✓ The walls of the houses, kubas (clay huts) and streets were made of clay.
- ✓ We still find remains of ancient pottery work belonging to Lothal, Mohenjo-Daro and Harappan culture.
- ✓ Ancient remains of clay utensils are also found at Nagarjunakaunda in South India and Laghnaj (Mehsana district).
- ✓ Utensils were made of unbaked clay as well as baked clay (terracotta). This art form is still preserved.

3. WEAVING

- ✓ The ancient art of spinning means making thread from cotton balls and joining them together.
- ✓ Formally spinning was done as a cottage industry with the use of 'Charkha'.
- ✓ Gandhiji used the charkha as a symbol for Swadeshi movement during freedom struggle of India.
- ✓ Mahatma Gandhi gave importance to the art of spinning and weaving cloth as it was a cottage industry which could make people self-reliant.
- ✓ He used it as a weapon to fight for freedom under the theme of Swadeshi.
- ✓ The art of weaving muslin was famous in Dhaka.
- ✓ The woven cloth was so fine that Takas(metres of the cloth) could easily pass through a ring and could be adjusted in a matchbox.
- ✓ The Bandhanis of Rajasthan, Kanjivaram Sarees of South India were well known.
- ✓ Kashmir was famous for its Galicha (carpets).

4. PATOLA WEAVING

- ✓ During the reign of Siddhraj Jaisingh of the Solanki Dynasty, many artisans (weavers) came and settled in Patan in Gujarat.
- ✓ They wove sarees which are called Patolas. This art is more than 850 years old.
- ✓ The Patola silk sarees are woven with Bevad Ikat. Ikat means weaving.
- ✓ These sarees are woven is such a way that they can be worn on either sides.

- ✓ It has a lot of variety and durability. The designs never fade but the cloth may tear.
- ✓ Sadly there are few surviving families which carry out this complicated and time consuming art.

5. BANDHANI

- ✓ The ancient art of Bandhani is famous in Rajasthan and Gujarat.
- ✓ In Gujarat the bandhanis of Jamnagar, Jetpur, Bhuj and Mandavi are very popular.
- ✓ It means tie and dye work on cloth.
- ✓ The common designs of elephant, puppet, pitcher and dice are used.
- ✓ It is colourful and has a lot of lustre.

6. EMBROIDERY

- ✓ Embroidery is an ancient art form done as small-scale industry by Gujarati women.
- ✓ It is mainly done by the women in Saurashtra and Kutch region of the state.
- ✓ Women make embroidered Torans, Chakla (wall-pieces), Shaakh, 'Todaliya' and bed sheets. - Clothes like kediya(jackets), shawls and quilts are embroidered.
- ✓ The Jat community of Banni area of Kutch is known for its unique embroidery.

7. LEATHER INDUSTRY

- ✓ This ancient art form processes the hides of dead animals in a traditional manner.
- ✓ Leather was used for making 'Mashak (leather bag for fetching water), the bellows used by blacksmiths, different types of drums (musical instruments), footwear, leather straps for animals.
- ✓ It was also used to make shields for war.
- ✓ The well knitted 'Mojadi' of Rajasthan are famous.
- ✓ Various leather articles like shoes, purses, and belt are made.
- ✓ Leather articles used for riding camel and horse like saaj, palan and lagaam (saddle, harness and halter) are also made.

8. BEAD-WORK

- ✓ India has a long coastline, Pearls and beads are found in plenty due to the surrounding seas of India.

DIAMONDS

- ✓ Since ancient times, merchants have traded diamonds and beads to other countries through sea routes.
- ✓ The world famous diamond like Kohinoor and Great Mughal were found in India.
- ✓ Diamonds, rubies, beads, emerald and topaz have been used for jewellery, thrones and crowns.

BEAD-WORK

- ✓ It is prominent art form of Gujarat.
- ✓ People make beautiful bead torans, pachhit (partition walls), bari (window-grills-frames), chakla (a traditional wall piece).
- ✓ They also make pots, lagna na nariyel (artificial coconut prepared with beads), indhoni (for balancing water pots on heads) and hand fans with an embroidered border of beads.
- ✓ For the animals they make modiya (a decorative net which covers horns of bullock) and jhool (animal book cover) out of beads.

9. ENAMEL WORK

- ✓ India is the only country in the world where expertise can be seen in enamel work.
- ✓ It is an artistic skill of inlaying colourful metal 'Meena' in gold and silver ornaments.
- ✓ The colours mainly used are red, green and blue.
- ✓ The metal is placed in rings, bangles, earrings, key chains, necklaces.
- ✓ Jaipur, Delhi, Lucknow, Varanasi and Hyderabad are famous for enamel work.

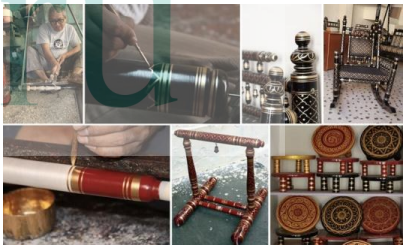
10. JARI WORK

- ✓ In India jari work is an ancient art.
- ✓ Jari is the gold and silver thread used for doing embroidery on the clothes.
- ✓ Surat is famous for its jari and jardoshi work.
- ✓ Jardoshi is the embroidery done with gold thread on sarees and garments.

11. METAL WORK

- ✓ Metal Age came after Stone Age.
- ✓ Lothal is an ancient excavated city of the Indus Valley Civilization.
- ✓ The artisans of Lothal made different weapons like sickle (for cutting corn), curved saw and needles of copper and bronze.
- ✓ They also prepared utensils, idols and pots out of copper and bronze.
- ✓ Arms and ammunition for wars were made out of iron.
- ✓ Ornaments were made out of gold and silver.

12. WOODEN ART



- ✓ Man's life is closely associated with wood. Initially man used wood for fuel.
- ✓ It is also an ancient art from where wood was used for making toys, idols, wood carvings, weapons, furniture and building.
- ✓ Wooden furniture like swings and toys of Idar and Sankheda in Gujarat are well-known.

13. INLAY WORK

- ✓ Inlay work is considered to be very ancient art of India.
- ✓ The Indian rulers and other royals used to wear ornaments like necklace, bracelet, ring, nose ring, damni (tiko) and their crowns were studded with diamonds, pearls and rubies.
- ✓ Artisans were experts in the work of inlay art.
- ✓ Bikaner area of Rajasthan is very popular for inlay work.

14. AKIK WORK

- ✓ Akik is a precious stone, found in river valleys.
- ✓ Generally silica mixed blue or white chalcedonic stone is called akik.
- ✓ Carnelian which is the main type is semi – transparent and has beautiful red colour.

- ✓ In Gujarat this precious stone is found in Ahmedabad, Ranpur and Surat.
- ✓ These stones are sent to Khambhat to mould into beautiful ornaments with various designs.

15. PAINTING

- ✓ This ancient art form is the foremost of all the art forms.
- ✓ It is expressed through lines and colours.
- ✓ It aims at expressing human emotions by imitating the animate and inanimate objects of nature through lines and colours.
- ✓ The art of painting is nearly 5000 years old.
- ✓ The Harappan people used to draw geometrical lines, creepers and flowers on clay utensils.
- ✓ Cave painting of primitive man of the Stone Age are found at Bhim Betka (M.P) there are figures of elephant, rhinoceros, deer in them.
- ✓ The paintings and sculptures of Ajanta-Ellora are incomparable.
- ✓ During festivals and celebrations people make rangoli patterns and also sketch the swastika, auspicious pitcher and Ganesha.

16. MUSIC

- ✓ Indian Music is different from the music of other countries from the point of view of tune, rhythm and harmony.
- ✓ It involves singing and playing instruments.
- ✓ It is divided into classical and folk form.
- ✓ It has five main ragas- Shree, Bhairavi, Deepak, Hindol and Megha.
- ✓ These ragas are believed to have come from the 'Panchmukh' of Lord Shiva.
- ✓ The 'Samveda' is called Gangotri of Indian music and is an important source to study the development of Indian music.
- ✓ There are seven notes of music - SA, RE, GA, MA, PA, DHA, NI

17. ANCIENT TEXTS ON MUSIC

SANGEET MAKRAND

- ✓ It was written by scholar Narad around 900 BC.
- ✓ It describes 19 types of Veena and 101 rhythms.

SANGEET RATNAKAR

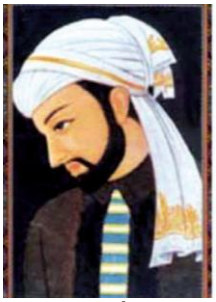
- ✓ It was written by Pundit Sarangdev of Daulatabad, who was familiar with both South and North Indian music.
- ✓ Pundit Vishnu Narayan Bhatkande has called it the most authentic book on music as it helped to understand all aspects of music.

SANGEET PARIJAT

- ✓ It was written by Pundit Ahobale in 1665.
- ✓ It describes the North Indian type of music.
- ✓ He has described each raga and 29 types of tunes.

OTHER IMPORTANT MUSICIANS

- ✓ Amir Khushroo, the famous poet and musician during the time of Allaudin Khalji was known as Tuti-e-Hind (Parrot of India).
- ✓ During the Bhakti Movement of the 15th and 16th century, the holy songs of Chaitanya Mahaprabhu, Kabir, Tuslidas, Mirabai, Narsinh Mehta were popular.



Amir

Khushroo

- ✓ The disciples of Swami Haridas were Baiju Bawra and Tansen and the pair of Tana and Riri are also considered jewels of music of the 15th century.

18. ART OF DANCE

- ✓ The word Nritya is derived from the words, 'Nrit' (dance), 'Taal' (rhythm) and 'Lay' (harmony). -It is a means of realising beauty.
- ✓ Lord Shiva is the originator of dance on the earth through his 'Tandav' nritya.
- ✓ He is called 'Natraj' the Lord of Dance.
- ✓ The traditional classical dances of India are - Bharatnatyam, Manipuri, Kuchipudi, Kathakali and Kathak.

BHARATNATYAM

- ✓ This ancient dance form comes from Tanjore district in Tamilnadu.
- ✓ We can get information about this dance form from 'Natyashastra' by Bharatmuni and 'Abhinav Darpan' by Nandikeshwar.
- ✓ The famous dancers are Gopi Krishna, Vaijayanti Mala and Hema Malini.

KUCHIPUDI

- ✓ This ancient dance originated in Andhra Pradesh in the 15th century.
- ✓ There are male and female dancers and the dance is based on the description of women's beauty.
- ✓ The famous dancers are Guru Prahlad Sharma, Raja Reddy and Shobha Naidu.

KATHAKALI

- ✓ This is an ancient dance form of Kerala.
- ✓ It is based on ancient epic of Ramayana and Mahabharat.
- ✓ The characters wear beautiful pleated attires and artistically coloured crowns.
- ✓ The dancers use facial expressions and different hand poses.
- ✓ Poet Vallathod of Kerala founded the Kalamandal Kathakali.
- ✓ The Kalamandalam, Krishnaprasad and Shivaraman have earned great fame in the nation and worldwide.

KATHAK

- ✓ Kathak is an ancient dance form of India.
- ✓ The saying 'Kathan kare so kathak kahave' relates to the development of Kathak dance.
- ✓ It consists of mainly the events of the life of Shri Krishna.
- ✓ It has developed due to the Shrungar Bhakti of the Vaishnav sect.
- ✓ The dancers wear a tight fitted pyjama pant and loose top with gathers.
- ✓ The famous dancers are Birju Maharaj, Sitara Devi and Kumudini Lakhia.

MANIPURI

- ✓ It is ancient dance form of Manipur.
- ✓ It is based on Shri Krishna's childhood and Raslila.
- ✓ It has two forms Lasya and Tandav.
- ✓ The Manipuri dancers wear a pleated green coloured petticoat called 'Kumin'.
- ✓ They wear a silk blouse and a belt around the waist.
- ✓ Guru Amobisingh, Guru Bipin Sinha, Atombosingh, Nayna Zaveri, Nirmal Mehta are the famous dancers.

19. ART OF DRAMA

- ✓ Drama has the capacity to entertain both the literate and illiterate.
- ✓ The art of drama and stage is very popular since ancient times. Bharatmuni's 'Natyashashtra' is a mirror to the art of Drama.
- ✓ He rightly points out, "there is no book, no sculpture, no knowledge, no deed which is lacking in dramatic art."
- ✓ The first drama of Bharatmuni was 'Devasur Sangram'
- ✓ In Sanskrit literature, we have renowned dramatists like Bhas who wrote Karnabhar, Urubhanga, Dutvakyam based on the Mahabharata.
- ✓ The great dramatist Kalidas has gifted us dramas like Abhigyan Shakuntalam, Vikramorvashiyam and Malvikagnimitram.
- ✓ In Gujarat the name of 'Jayshankar Sundari' is the foremost in drama.
- ✓ Others who have left a mark in the field are Amrut Nayak, Bapulal Nayak, Dina Pathak, Jashwant Thakar, Upendra Trivedi, Pravin Joshi and Deepak Gheewala.
- ✓ Many regional dramatists have also contributed to the art of drama.

20. FOLK PLAYS/DRAMAS OF BHAVAI

- ✓ Bhavai is an ancient drama from Gujarat. It was started by Asait Thakar during the Solanki Dynasty seven hundred years ago.
- ✓ It provides both entertainment and education at an economical rate.
- ✓ The main characters are called Rangla-Rangli.
- ✓ This type of drama does not have curtains for the stage.
- ✓ They are performing without curtains, have light humour and music.
- ✓ The characters are disguised in forms like Ramdev, Jhanda Jhulan, Kajoda.
- ✓ The drama begins by playing the trumpet and praying to the Goddess and reciting a hymn.
- ✓ The theme of the Bhavai is mostly fighting against social vices and promoting efforts like girls' education and save the girl child.

21. FOLK DANCES OF GUJARAT

Folk dances are based on customs and traditions. They are performed at the time of festivals, marriages and fairs. The following are some of the dances of the state:

TRIBAL DANCE

- ✓ In Gujarat, the tribals dance at the time of festivals, marriages, fairs and to please the God-Goddesses.
- ✓ Most of the dances are performed in a circle with traditional musical instruments like drum (dholak) and manjira (cymbals) and regional language songs.

- ✓ In the dance called Chalo, the dancers imitate the birds like peacock, squirrel and sparrow.
- ✓ In Dang, we see dancers like 'Mali no Chaalo' and 'Thakryo Chaalo'.
- ✓ The Tippani Dance is performed by labourers of the Bhil and Koli communities.
- ✓ The dancers dance in a group with thick sticks which are joined with smaller square wooden piece at the bottom and these are struck on the ground while dancing.

GARBA AND GARBI

- ✓ The dance Garba gets its name from the word 'Garbh deep'.
- ✓ This dance is performed mainly during the festival of Navratri which comes in the month of 'Aso' from the first to the ninth and sometimes till the full moon night in most parts of Gujarat.
- ✓ The people perform this dance and worship Goddess of power (Adhya Shakti -Jagdamba).
- ✓ The dancers place a lighted earthen lamp in an earthen pot which has holes, on their heads and then dance in a circle.
- ✓ Picture or the statue of the Goddess is placed in the centre or the Mandvi and people dance with hand- strokes to the beat of the drums.
- ✓ Gujarati poetry is known as Garba or Garbi and it is mainly associated with Krishna Bhakti.
- ✓ The Gujarati poet Dayaram wrote Garbis, which are sung by the ladies as a part of devotion to Shri Krishna.

RAAS

- ✓ Raas is a group dance performed in a circle along with singing.
- ✓ There is a story that Lord Krishna had shown 'Raas Lila' to devotee (Bhakt) Narsinh Mehta.
- ✓ Rasa is mostly performed in Gujarat during Navratri and Janmashtami festivals.
- ✓ Dandiya Raas is a type of Raas.
- ✓ Some people perform this dance by placing an earthen pot on the head.
- ✓ The Vaishnav sect has made this dance form popular.
- ✓ Women wear traditional dresses like embroidered chaniya-choli and men wear embroidered kediya-dhoti when they perform this dance.

OTHER DANCES OF GUJARAT
GOF GUNTHAN DANCE

- ✓ The Gof Gunthan dance is performed to the tune of drumbeats.
- ✓ For this dance ropes are tied to a mandap, tree or a pillar.
- ✓ The dancers hold a rope in one hand and in the other they hold a dandiya.
- ✓ As they dance the ropes get entwined and form a creeper like formation and this plait is called gunthan.

DHAMAAL DANCE OF SIDDIS

- ✓ The Siddis, who are the original inhabitants of Africa, presently reside in Jambur village in the centre of Gir.
- ✓ They perform the dhamaal dance by rhythmically striking Mashira (coconut shell containing earthen lamp inside, covered with a cloth)
- ✓ They wear peacock feathers and hold small drums in their hands and dance in a circle.
- ✓ They dance with high and low pitch intonation sounds of 'Ho-Ho' sound and imitate the sound of birds and animals. These sounds echo in the whole forest.

MERAYO DANCE

- ✓ The Merayo dance is performed near the stepwell of Banaskantha region.
- ✓ A toran (merayo) is woven with the tall grass of reed and the dancers do sword tricks accompanied by drumbeats.

PADHAR DANCE

- ✓ This dance is performed by the Padhar community of Surendranagar.
- ✓ They dance to the tune of dandiyas and manjira (cymbals)
- ✓ While dancing they generate scenes like sea waves or like a ship moving on sea waves.

KOLI DANCE

- ✓ This dance is done by the Kolis of Saurashtra.
- ✓ They hold, madhrasio on the head, wear a head gear (turban) at whose end is attached a green mirror embroidered cloth.
- ✓ They also wear a colourful belt at the waist.
- ✓ The Mer dance of Saurashtra and dances of the Bharwad tribes are also well known.

PRACTICE SHEET – 1

1. Physical and mental characteristics that a child inherits from the parents by birth is known as heritage.
(A) Natural (B) Material (C) Genetic (D) Cultural

2. Whatever man obtains or creates with his intellect and skills is called heritage.
(A) Natural (B) Cultural (C) Genetic (D) None of the above

3. House, land, estates like properties from ancestors is called heritage.
(A) Natural (B) Material (C) Genetic (D) Cultural

4. From ancient India we learnt about how many art forms?
(A) 60 (B) 58 (C) 64 (D) 78

5. Which day is celebrated as 'World Yoga Day'?
(A) 21st June (B) 1st May (C) 21st April (D) 5th Sept

6. Vessels made from what material were used before the use of metals?
(A) Clay (B) Wood (C) Stone (D) Spice

7. Man's whole life revolves around clay from _____.
(A) Cave to home (B) Light to darkness
(C) The cradle to the grave (D) One life to another

8. In ancient times, toys, pots, pitchers, etc. were made out of _____ .
(A) Copper (B) Clay (C) Paper (D) Wood

9. Clay huts were also known as _____.
(A) Kobas (B) Cubas (C) Qubas (D) Kubas

10. We get the idea about clay-work from the remains of play – toys and other things found from ancient places like _____.
(A) Dholaveera and Lothal (B) Mohen-jo-Daro and Harappa
(C) Nagarjunkaunda and Laghnaj (D) All of the above

11. Clay utensils of red colour belong to _____ culture of ancient time.
(A) Lothal (B) Mohen-jo-Daro (C) Harrapan (D) All of the above

12. _____is considered to be the first machine for clay-work made in ancient India.
(A) Clay stone (B) Earthen Lamps (C) Potter's wheel (D) Cubans

13. Remains of old hand-made clay utensils are found in _____ in Mehsana district.
(A) Modhera (B) Badhiyad (C) Laghnaj (D) Lothal

14. Terracotta means _____.
(A) Baked clay (B) Unbaked clay (C) Semi-baked clay (D) None of the above

15. Dhaka city was famous for _____.
(A) Muslin (B) Carpets (C) Silk (D) Patolas

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
C	B	B	C	A	A	C	B	D	D
11.	**12.**	**13.**	**14.**	**15.**					
D	C	C	A	A					

PRACTICE SHEET – 2

1. In which state are the Bhim Betka caves situated?
(A) Kutch (B) Madhya Pradesh (C) Punjab (D) Gujarat

2. Which sketches are seen in the cave paintings of Bhim Betka?
(A) Birds and animals (B) Flowers and plants
(C) Dance forms (D) Geometrical designs

3. Which art occupies the foremost position among the different art forms?
(A) Music (B) Dramatics (C) Painting (D) Clay work

4. _____is an art which can be expressed through lines and colours.
(A) Drawing (B) Sculpture (C) Painting (D) Enamel work

5. The ancient art form of painting of Harappan time is_____ years old
(A) 2500 (B) 4500 (C) 6000 (D) 5000

6. Where do we have traces of pre-historic cave paintings?
(A) Harappan (B) Bhim Betka (C) Dholaveera (D) Lothal

7. Which form of art involves both singing and playing?
(A) Painting (B) Dance (C) Dramatic Art (D) Music

8. How many ancient ragas of music are there?
(A) 3 (B) 5 (C) 6 (D) 7

9. From the following which one is not a type of raga?
(A) Shree (B) Megh (C) Deepak (D) Jyot

10. The _____contains information on music.
(A) Rigveda (B) Atharvaveda (C) Samveda (D) Yajurveda

11. Who is the writer of the book 'Sangeet Makarand'?
(A) Lord Shiva (B) Narad (C) Sarangdev (D) Tulsidas

12. Who composed 'Sangeet Ratnakar'?
(A) Pandit Sarangdev (B) Pandit Ahobale
(C) Pandit Vishnu Narayan (D) Narad

13. Which book did Pandit Sarangdev write?
(A) Sangeet-Ratnakar (B) Sangeet-Makarand
(C) Sangeet-Parijat (D) Sangeet-Forum

14. How many types of tunes has Pandit Ahobale listed in Sangeet Parijat?
(A) 29 (B) 18 (C) 31 (D) 36

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
B	A	C	C	D	B	C	B	D	C
11.	**12.**	**13.**	**14.**						
B	B	A	A						

3 – CULTURAL HERITAGE OF INDIA (SCULPTURE AND ARCHITECTURE)

ARCHITECTURE AND SCULPTURE

– The word 'Vastu' is used for architecture in Sanskrit language.
– Vastu is directly related to construction of building, houses, towns, wells, forts, minarets, temples, mosques and tombs.
– The architect uses various materials and in this art form his skill is displayed.
– Sculpture means to carve the feelings of the sculptor on stone with a hammer and chisel.

ANCIENT INDIAN TOWN PLANNING

– Excavation work has shown that ancient India had expertise in town planning.
– The Indus Valley towns were divided into three sections:
  1. Fort of rulers (Citadel) was built in the upper part of the town and was fortified.
  2. Houses of administrative officers situated in the upper part of town. These had two to five rooms. The upper part of the town was safe.
  3. Residences of common people situated in the lower part of town and their houses were made of handmade bricks.
– The town planning of the cities Harappa and Mohenjo-Daro was the best.

MOHENJO-DARO

– In 1922, archaeologists Rakhal Das Banerji and Dayaram Sahni found the remains of a town during excavation work which was being carried out under the guidance of Sir John Marshal and Colonel Make, in Larkhan district (now in Pakistan).
– Mohenjo-Daro means 'the heap of the dead'.

CONSTRUCTION OF THE TOWN

a. Houses

– Mohenjo-Daro had the best town planning.
– The houses here were built on a high plinth to protect them from dampness or floods.
– The houses of the rich were double storeyed with five to seven rooms, while those of the poor were single-storeyed with two to three rooms.
– The main entrance of the houses opened in the side lanes and not on the main roads.
– The remains of a kitchen, store-house and bathroom were found in every house.
– There was proper arrangement for doors and windows to keep the houses well ventilated. The town was fortified.

b. Roads

– Roads were the main features of this town planning.
– The main roads were 9.75 meters wide.
– There were two main roads - one going from North to South and the other from East to West.
– Both crossed each other at right angle.
– The small link roads crossed the major ones at right angles.
– The roads were wide enough for a number of vehicles to pass at a time.
– Pits on the road side suggest that there might have been lamp posts there.
– Roads of the town were straight and the main roads had no turns - this was a specialty of ancient time.

c. Drainage System

– Drainage system is a unique feature of this town planning.
– The town had an underground drainage system.
– Each house had a cesspit and the dirty water was drained out of the town.
– Such a drainage system was only found in the island of Crete in the Mediterranean Sea.
– This proves how careful those people were for their health and hygiene.

d. Public Baths

– A huge bath was excavated at Mohenjo-Daro.
– There was an arrangement to supply fresh water and throw out the dirty water.
– There might have been facility for hot water and small rooms for changing clothes.
– The public baths might have been used on festivals and religious ceremonies.

e. Public Buildings

– The ruins of two huge buildings have been found at Mohenjo-Daro.
– They might have been used as a town hall or a theatre or an administrative office or a granary.
– A barrack of such buildings was found out and this must have been used to accommodate soldiers.

HARAPPA

– In 1921, under the leadership of Sir John Marshal and Colonel Mackey, Dayaram Sahni discovered very ancient remains of Indian civilization from Montgomery district in Punjab (Pakistan) near Harappa.

THE REMAINS OF INDUS VALLEY CIVILIZATION WERE FOUND FROM:

– Rapar in Himalayan region,
– Alamgirpur in Meerut in Uttar Pradesh,
– Kalibangan in Rajasthan,
– Lothal near Dholka in Gujarat,
– Deshalpur, Shikarpur and Dholaveera in Kutch,
– Rangpur near Limbdi in Saurashtra,
– Shrinathgad (Rozadi) near Gondal, Kuntasi near Morbi and Somnath in Gujarat
– The region of Saptsindhu rivers is a region of our Indus Valley Civilization.
– The first remains were found from Harappa so it is also known as Harappan civilization.
– At this place stone and copper weapons and other things were found so it is also called Copper-stone Age civilization.
– The town planning of Harappan civilization was very systematic.
– Its granaries and forts were remarkable.
– The people of that age were fond of wearing ornaments.

DHOLAVEERA

– A huge and systematic ancient town, contemporary to Harappan civilization has been 2 km away from Dholaveera.
– This town is in Khadirbet, in Bhachau taluka which is about 140 km away from Bhuj.
– Research work was carried out at the place of the ruins in 1990 by the Archaeological Department under the guidance of Ravindra Singh Bisht.
– The Dholaveera remains like the palace and main walls of the town were painted white.
– The fortification round the town proved that there was strong security.
– The wall was made up of clay, stone and bricks.
– There was proper system to make pure water available to the people. Such a system is not available even today.

LOTHAL

- Lothal is situated in Dholka taluka of Ahmadabad district.
- Dholka is between two rivers Bhogavo and Sabarmati and 18 km from Bay of Khambat.
- Lothal might have been a rich and prosperous port.
- A huge dockyard was constructed to allow ships to come in during high tide in the lower eastern part of the town.
- This dockyard was proof that international trade was carried out from Lothal.
- There were three layers of houses.
- This is a matter of great pride not only for Gujarat but also for history of India.

MAURYAN ART- STUPA

- **Stupa:** An oval shaped construction under which the remains of Lord Buddha's body were kept in a box is known as Stupa.
- There are five famous stupas of king Ashoka's time
  1. Stupas of Sanchi 2. Stupa of Sarnath 3. Stupa of Berat
  4. Stupa of Nandangadh 5. Stupa of Devanimori in Gujarat.
- Besides, Chaityas, Viharas and Maths were constructed.
- The period of king Ashoka was the golden period of prosperity for Buddhist religion and age of sculpture and architecture.
- Buddhist religion has gifted caves, viharas, chaityas and stupas to the field of architecture.

LINEAR SKETCH OF STUPA TORAN (ARCH)

- Toran means a gateway that is built on two high pillars and there are artistic horizontal beams on it. The devotees use it as an entrance.

Pradakshina Path:

- A slightly elevated circular path around the temple or place of worship is called pradakshina path.
- Pradakshina is done in such a way that place of worship is always to the right side.

Medhi:

- Elevated circular path around stupa is known as medhi, it is used for pradakhshina.

Harmika:

- The railing around the top of the oval shaped stupa is called harmika.

STUPA OF SANCHI

- The Sanchi stupa was built during the Mauryan Period.
- It is situated at Madhya Pradesh.
- The original stupa was made of bricks..
- It was half the size of the present Stupa.
- The stupa is an important specimen of the art of ancient architecture.

PILLAR INSCRIPTIONS

- Stone inscriptions were made from single rock.
- Stone inscriptions carved out by the religious order of emperor Ashoka are the best specimen of engraving on stone.
- They were polished so well that they gleamed (shined).
- Such pillars were erected in Ambala, Meerut, Allahabad, Sarnath, Loriya near Nandangadh, Sanchi, Kashi, Patna and Bodhivruksha near Bodh – Gaya.
- They were carved in Brahmi Script.

PILLAR OF SARNATH

– The stone inscription at Sarnath is the best specimen of sculpture.
– Sarnath is a place of preaching of Lord Buddha.
– The pillar has four lions facing four directions.
– Below the lions the Dharma chakras (wheels of religion) are carved.
– It is called Dharma Chakra as it indicates the triumph of religion.
– It also has the sculpture of an elephant, horse and bullock.
– This wheel has been placed on the national flag of India.
– The image of the four lions is a part of our national emblem.
– It is considered to be one of the best specimens of sculpture in the world.

STONE INSCRIPTIONS

– Stone inscriptions carved by religious orders of Emperor Ashoka are the best specimens of engraving on stone.
– There are wooden and stone sculpted inscriptions as a part of ancient architecture which are engraved on the arches of the gates as a part of religious teachings.
– Such stone inscriptions have been found from Peshawar, Dehradun, Thane, Mumbai, Dhauli and Jaugada in Odisha and Chennai.
– Stone inscriptions have also been found at the foothill of Girnar and in Junagadh in Gujarat. -There are Jain stone inscriptions in Sanskrit and Gujarati at Palitana, on Shetrunjay hill Gujarat and in Hathisinh Jain temple (1847) in Ahmadabad.

DRAVID STYLE OF ART IN SOUTH INDIA

– Many Buddhist stupas were built in the regions near Krishna and Godavari rivers during the reign of Satvahan kings.
– They were of semi-circle, oval and bell shaped.
– Stupa of Nagarjunkaunda and Amravati are the best specimens of Dravid style of art.
– Chola kings adopted Dravid style of architecture up to the great extent.

ART OF GUPTA PERIOD

– During the Gupta period, architecture, sculpture, painting, dancing and music flourished.
– The Parvati temple at Jabalpur (Ninava), Bhumara (Nagoda) Shiva temple, Eran's (Madhya Pradesh) Narsinh temple, Gopmandir at Jamnagar are famous.
– Buildings like stupas, chaityas, maths, viharas, flag pillars are the unique examples of architecture of Gupta period.
– The Buddha statue at Sarnath, statue of Lord Vishnu at Mathura, statue of Mahavir Swami, caves of Udaya giri and statue of Vishnu in the form of Varah in Udaygiri caves are famous specimen of the sculpture of Gupta period.
– This period is known as the golden period of art.

CAVE ARCHITECTURE

– Cave architecture is a part of Cultural heritage.
– Famous cave are Ajanta and Ellora at Aurangabad, Elephanta near Mumbai, Udayagiri and Bagh near Gwalior, Bhuvneshwari at Odhisha, Khandgiri and Nilgiri are specimens of cave architecture of Gupta period.
– There are inscriptions of Ashoka on the walls of three caves of Barabar mountain, 16 km away from Gay a describing the works done by Ashoka.
– Caves of Assam and Darjeeling, Sudama cave of Bihar and cave of Sita are also well-known. There are many caves in Gujarat also.

CAVES OF GUJARAT

(a) Caves at Junagadh:

There are three groups of caves in Junagadh

i. Bavapyara caves

– There are 16 caves in three layers, intersecting each other at right angles.
– In the first line there are 4 caves, in the second there 7 caves and in the third line there are 5 caves. These caves might have been carved in the first or second century AD.

ii. The Uparkot caves

– They are double storeyed.
– They might have been carved during the end of 2nd century and the beginning of 4th century.

iii. Caves of Khapra and Kodiya

– These caves have been carved over the edge of a lake.
– They might have been carved in the third century.
– There are twenty pillars and they are in ruins now.
– These caves are in ruins today.

(b) Khambhalida Caves

– These caves were discovered in 1959.
– They are situated at Khambhalida near Gondal about 70 km from Rajkot.
– Three of the caves are remarkable.
– The central cave is a Chaitya. At its entrance there are figures of Boddhisattvas.
– There is an old stupa here.

(c) Talaja Caves

– The Talaja hill is situated near the mouth of the Shetrunji river in Bhavnagar district.
– It is famous as Taaldhwajgiri, a place of pilgrimage.
– There are 30 caves which have been carved from stones with huge gates.
– The cave has a unique sculpture called Ebhal Mandap (Sabhakhand) and Chaitya Gruh.
– This cave architecture belongs to the third century A.D.

(d) Sana Caves

– This group of caves is situated on the top of Sana Mountain in Vankiya village, Una taluka in Gir Somnath district.
– There are 62 caves spread like a bee-hive.

(e) Dhank Caves

– Dhank giri is situated in Dhank village of Upleta taluka at Rajkot district.
– They might have been built in the beginning of 4^{th} century.

(f) Jhinjhurijar Caves

– There are many Buddhist caves in the west of Dhank, about 7km from Sidsar, is the valley of Jhinjhurijar.
– It is considered that they have been built in the second century.

(g) Khapra – Kodiya Caves in Kutch

– These caves are situated on the top of hill near old Patgadh, in Lakhpat taluka of Kutch.
– There are two caves; these were discovered by K. K. Shastri in 1967 A. D.

(h) Caves at Kadiya Dungar

– The three Kadia Dungar caves are located at Jhagadiya taluka in Bharuch district.
– These are the specimen of Buddhist religion.
– Architecture of these caves is marvelous.
– There is an 11 ft high pillar on which a two bodied lion with one mouth has been sculpted.

PALLAVA ARCHITECTURE AND CHARIOT TEMPLES

– The Pallava kings built the chariot (manadapa) temples cut out of single rock in Mahabalipuram in South India.
– These temples are dedicated to the Pandavas.
– The biggest is dedicated to Dharmaraj (Yudhistra) and the smallest one is dedicated to Draupadi.
– The Kailashnath Temple of Kanchi dedicated to Lord Shiva and the Vaikunth Perumal temple in Tamil Nadu dedicated to Lord Vishnu are best examples of architecture.
– The Sun Temple of Konark in Odisha is a form of Chariot temple.

FINE EXAMPLES OF ANCIENT TEMPLES AND SCULPTURES

– The Bhoomara Shiva temple near Jabalpur and temples of Larkhan in Bijapur district of South India are unique.
– The Sun Temple of Konark in Odisha is a fine example of Chariot temple.
– The Chola temples king Rajarajeshwar built the Brihadeshwara temple at their capital city of Tanjavur. This unique temple is about 200 m high.
– The Chandela ruler of Bundelkhand built the Khajuraho temples which are known for their ornamental style of their pinnacles
– The copper statue of Lord Buddha in Nalanda (Sultangunj) and Jain temples of Mathura are unique specimens of architecture and sculpture.
– Temples constructed in Kanchi, the capital city of Pallavas are very famous.
– The bronze statue of Natraj is the best example of idol sculpting of Chola period.

ARCHITECTURE OF GOPURAM

– Gopuram is the entrance of the temple.
– The construction of temples gained momentum during the Pandya rule in South India.
– They built high outer walls with entrance gateways called Gopurams.
– The Gopurams have become more famous than the temples.
– The Gopuram of Kanchi and Madurai are excellent even when seen from a distance.
– The Brihadeshwara temple in Thanjavur has 13 storeyed Gopuram.
– The Meenakshi temple which is a huge temple in Madurai has four main Gopurams.

JAIN TEMPLES (DERASAR)

– There are five main Jain temples -Vaibhar at Rajgruha, Vipulachal, Ratnagrri, Udayagiri and Shramangiri.
– There is a Siddhakshetra Pilgrim in Samet Shikharji known as Madhuvan.
– Here Aadinath Bhagwan and other 20 Tirthankars had attained Nirvana.
– Here there are temples of Abhinandan Nathji and Parshwa Nathji.
– Bhagwan Mahavir reached here and many sages had attained salvation (Moksha).
– There is a Jain temple at Palitana and Panchasara temple is at Shankheshwar in Gujarat.
– The Jain temples at Delwara (Mount Abu) and Ranakpur in Rajasthan are famous.
– The Jain temples at Mt Abu are made of white marble and are famous not only in India but even abroad for their attractive minute carvings and artistic sculpture.

MODHERA SUN TEMPLE

– This temple is dedicated to the Sun God.
– It was built during the reign of Solanki king Bhimdev-I in Gujarat (Mehsana district).
– A gem was studded in the middle of the crown of the Sun God.
– When the rays of the sun fell on the gem through the entrance gate on the Eastern side, they lit up the entire sanctum and created a divine atmosphere.
– There twelve different images of the Sun God and erotic sculptures are seen in this temple. -The carving is done in Iranian School of Art.
– There are 108 small temples surrounding the outside tank which creates a pleasant sight at dawn and dusk.

LINEAR SKETCH OF SOUTH INDIAN TEMPLE

Gopuram: It is the gateway of a South Indian temple. Two lower storeys of temples are convex shaped and the other two storeys are aloft to make a pyramidal structure that makes the Gopuram strong.
Mandap: It is a big hall constructed on pillars or is the area in front of the main gate where devotees get together.
Garbha Gruh: It is a small and dark rectangular room in which the idol is kept. In Gujarat, it is known as 'Gobharo'
Viman: It is either semi-circle or sloping shaped with many storeys and looks like a pyramid.
Pinnacle (shikhar): The pointed exterior part of the Garbh Gruha at the top is known as pinnacle. It is plated either with gold or brass.

MEDIEVAL ARCHITECTURE

(a) Delhi and Ajmer

– In the medieval age mosques, minarets, royal palaces, bridges and charitable inns were built.
– Qutub-ud-din Aibak built Qutub Minar and Quwwat-ul-Islam mosque. Similar mosque named Adhai-Din-ka Jhopara was built by Qutub-ud-din Aibak, in Ajmer.

(b) Bengal

– Adina Mosque at Pandua region of Bengal, Tomb of Jalal-ud-Muhammad Shah and Tantipara mosque were constructed in regional style of architecture.

(c) Jaunpur

– The Sultans of Turkey built the Atala Mosque. There is an artistic grill around the dome. The walls and ceilings are decorated with many Indian designs including lotus.

(d) Malwa

– The buildings of Mandu depict the peculiar art of the Sultans. There are huge and impressive domes and minutely carved balconies. Many tombs have also been created here.
– For example the tomb of Hoshang Shah is made of marble in Indian style.

(e) Other regions

i. **Kashmir:** It is famous for its Kangur -Burj. The Bahmani Sultans built many buildings in Bidar and Gulbarga and the Mahmud Gava's Madrassa.
ii. **Bijapur: It is famous for its Golgumbaz dome.**
iii. **Hampi**: **It is famous for its Vithalaswami and Hazar Ram temple and its gopurams and** minute carvings of the Vijaynagar Empire.

LINEAR SKETCH OF MOSQUE

– **Galiyara: The** way to enter and exit from the mosque.
– **Kibla:** The hall where namaz is done is known as Kibla. It is in the direction of the Kaba (Mecca).
– **Livan:** The room in a mosque with pillars.
– **Maksura:** End of the mosque wall is known as Maksura, which is separated by a railing because that was only used by the royal family and the maulavi.
– **Mahrab:** The interior part of mosque wall, which is of human height, indicates the correct direction of Mecca, is known as Mahrab. (In India, Mahrab is kept in the West.)
– **Sahan:** The campus of the mosque where the followers of Islam get together for prayers.

ARCHITECTURE OF GUJARAT

– Sculpture and architecture of Gujarat include temples, mosques, Buddhist stupas, chaityas, viharas and maths, Jain temples and cave temples.
– There are palaces, forts, gates, victory tower (Kirti Stambh), arches, step wells, bird feed towers (chabutoro), overhanging balconies (jharukhas), outer domes of temples (ghumats) and canopies (chattris).

(a) Temples

- Some of the famous temples in Ahmedabad are Bhadrakali, Geeta Mandir, Veda temple, Jagannath temple (Jamalpur).
- **The famous temples dedicated to the goddess are:** Ambaji temple, Bahucharaji temple, Mahakali temple (Pavagadh), Khodiyar Mataji temple (Bhavnagar) and madh of Ashapurama (Kutch)
- **The famous temples dedicated to lord Krishna are:** Ranchhodraiji temple (Dakor), Shamlaji temple and Jagat temple (Dwarka).
- **Other temples are:** Sun temple (Modhera), Somnath temple, Swaminarayan temples, and Brahma temple (Khed Brahma).

(b) Mosques

Sultan Ahmedshah I built the Jama Masjid near Teen Darwaja in Ahmedabad in 1424 AD.
It has 260 pillars and 15 domes.
The other mosques are Sidi Saiyyad Grill with minute carving, Roza of Sarkhej, Shaking minarets, Ram Sipri or Nageena mosque.
The Jama Masjid of Champaner. There are many other mosques in big cities of Gujarat.

(c) Jain Temple

The Jain temples of Hathisinh, Kumbhariyaji, Shankheshwar, Siddhigiri, Shetrunjygiri, Palitana are well-known from sculpture and architecture point of view.

(d) Step-wells of Gujarat

The famous step-wells of Ahmedabad are Adalaj and Dada Hari (Hari ni vav).
The other famous ones are Ranki step-well of Patan and Hira Bhagor of Dabhoi.

(e) Others

The other famous architectural specimens are fort of Bhadra, fort of Teen Darwaza, Nageenawadi, Kankariya Lake (Ahmedabad), Rudra Mahalaya (Siddhpur), Shahstralinga Lake (Patan), Chori of Shamlaji, Samadhi of Tana-Riri, Kirti Toran (Vadnagar), Mansar Lake (Viramgam), Malav Lake (Dholka).

PRACTICE SHEET – 1

1. The art of constructing houses and building is _____.
(A) Vastu art (B) Architectural style (C) Sculpture (D) Town-planning

2. The word 'Vastu' is used for _____ in Sanskrit language.
(A) Astrologer (B) Sculpture (C) Architecture (D) Astronomy

3. _____Means to carve the feelings of the sculptor on stone with hammer and chisel.
(A) Architecture (B) Sculpture (C) Vastu (D) Idol-making

4. Where is Dholaveera?
(A) Bhuj (B) Khavda (C) Aliyabet (D) Khadirbet

5. Dholaveera is located at Khadirbet in_____Taluka of Kutch district.
(A) Bhachau (B) Anjar (C) Mandvi (D) Bhuj

6. The towns of Mohe-jo-Daro and Harappa were divided into _____sections.
(A) One (B) Three (C) Two (D) Four

7. _____lived in the upper part of the towns of Indus Valley Civilisation.
(A) Rulers (B) Administrative officers
(C) Soldiers (D) Common people

8. _____lived in the lower part of the towns of Indus Valley Civilisation.
(A) Rulers (B) Administrative officers
(C) Soldiers (D) Common people

9. The uppermost part of the towns of Indus Valley Civilisation was known as _____.
(A) Fort (B) Palace (C) Castle (D) Citadel

10. In Mohen-jo-Daro, houses were built on a high plinth to protect them from _____.
(A) Dampness (B) Wild animals (C) Floods (D) Both (A) and (C)

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	C	B	D	A	B	B	D	D	D

PRACTICE SHEET – 2

1. There were _____famous stupas of King Ashok(A)
(A) Two (B) Three (C) Four (D) Five

2. The stupa of _____of King Ashoka's time is found in Gujarat.
(A) Devanimori (B) Sarnath (C) Ambala (D) Nandangadh

3. The period of king _____was the golden period of Buddhist architecture and sculpture.
(A) Ashoka (B) Kanishka (C) Chandragupta (D) Milind

4. The Sanchi stupa is situated at _____.
(A) Maharashtra (B) Madhya Pradesh (C) Andhra Pradesh (D) Chattisgarh

5. The Dharmachakra on the Pillar of Sarnath gets its name because _____.
(A) It stands for spread ,of religion (B) It indicates triumphs of religion
(C) It stands for land of religion (D) It stands for Hindu religion

6. The Palitana Jain temples are found on _____hills of Gujarat.
(A) Girnar (B) Pavagadh (C) Shetrunjay (D) Saputara

7. Stone inscriptions have been found from the foothills of _____mountains of Gujarat.
(A) Girnar (B) Pavagadh (C) Shetrunjay (D) Saputara

8. Stone inscription are found in the Jain temple of Hathisinh in _____.
(A) Vadodara (B) Ambaji (C) Ahmedabad (D) Junagadh

9. To which school of art do the semi-circled, oval and bell-shaped stupas belong?
(A) Gandhar (B) Gothic (C) Dravid (D) Mathura

10. Which statue has been accepted as the National Emblem?
(A) Four lions (B) Dharma Chakra (C) Man with a beard (D) Inverted lotus

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
D	A	A	B	B	C	A	C	C	B

PRACTICE SHEET – 3

1. About which pillar are they talking about?
Rick: The pillar has four lions facing four directions.
Mike: It was the preaching place of Lord Buddha
Nicole: The Dharmachakra has been placed in the national flag.
(A) Ambala (B) Sarnath (C) Sanchi (D) Meerut

2. Read the dialogue and determine which cave are they talking about? Frenny: They are in three layers.
Zena: They are intersecting at right angles.
Tony: They are total 16 caves here.
(A) Khambalida (B) Talaja (C) Bava pyara (D) Dhank

3. About which cave are the girls talking?
Seema: These caves are situated near Gondal.
Nirma: They are 70 km away from Rajkot.
Reema: One of the caves is a Chaitya Gruh.
Meena: Figures of Bodhisatvas and statues of devotees are at the entrance.
(A) Khambalida (B) Talaja (C) Bava pyara (D) Dhank

4. About which caves are they talking?
Naomi: These caves are situated on the top of the hill near old Pathgadh.
Barney: There are two caves.
Fenny: They are discovered by K. K. Shastri.
(A) Khambalida (B) Talaja (C) Khapra-Kodiya (D) Dhank

5. About which caves are they talking?
Zuma: There are three caves at Jhagadiya taluka in Bharuch.
Pina: They are the best ancient specimens of Buddhist architecture.
Liza: There is a eleven feet high statue of a lion with two bodies and one mouth.
(A) Kadiya-Dungar (B) Dhank (C) Sana (D) Talaja

6. Which temple are they talking about?
Nisha: It was constructed by Rajraja of Chola dynasty.
Sana: It is about 200 metres high.
Priya: It has a thirteen storeyed Gopuram.
(A) Khajuraho (B) Meenakshi (C) Brahadeshwar (D) Sankheshwar

7. Which temple are they talking about?
Paul: It was built during the reign of Solanki King Bhimdev-I.
Mahesh: The first rays of the sun light up the entire sanctum
Imran: There are 108 small temples surrounding the outer tank.
Farzad: The carving is done by the Iranian school of Art.
(A) Sun Temple Konark (B) Sun Temple Modhera
(C) Brahadeshwar Temple (D) Meenakshi Temple

8. Which mosque are they talking about?
Samir: It is near Teen Darwaja
Huma: It was built by Sultan Ahmad Shah-Iin 1424 A. D.
Kabir: It has 260 pillars and 15 domes.
(A) Jama Masjid at Champaner. (B) Roza of Sarkhej.
(C) Jama Masjid at Ahmedabad. (D) Mosque of Ram Sipri.

9. In which language are stone inscriptions engraved?
(A) Sanskrit (B) Brahami (C) Pali (D) Prakrit

10. The pallavas buit the Chariot temple at _____.
(A) Mahabalipuram (B) Thanjavur (C) Madhurai (D) Kanchi

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	C	A	C	A	C	B	C	B	A

4 – LITERARY HERITAGE OF INDIA

I. LANGUAGE AND LITERATURE

– Early man communicated with symbols, drawings and sounds.
– This led to the invention of dialects and scripts.
– Script has contributed to the development of language.
– Language let to the creation of literature.
– India's most ancient script of Harappan Civilization has not been deciphered so not much about the language of that period is known.
– Ancient Indian literature is known for its diversity and uniqueness.
– It is divided into two parts Vedic and Classical.
– Ancient Folk literature was also popular.
– A variety of languages came about in India.
– These languages influenced one another and literature developed.
– Today there are 18 constitutionally recognized languages in India.
– They are mentioned in Article 8 of the Constitution.
– There are hundreds of languages spoken in India so it is a multi-lingual country.

DEVELOPMENT OF SANSKRIT LANGUAGE

– Sanskrit was the language of the Aryans.
– It was the language of the sages and scholars.
– It is the best language for the use of computers.
– Maharishi Panini wrote Ashtadhyayi, a book on Sanskrit grammar in the 4th century.
– Sanskrit was the chief language for knowledge, science, religion and philosophy.
– The Vedas, Upanishads, Brahmanical literature like Aranyakas, Vedangas, Smruti Granths, and Puranas were written in Sanskrit.
– The two epics Ramayana and Mahabharata were also written in Sanskrit.
– There were many Sanskrit dramas and poems written during the Gupta period.
– In Karnataka and Tamil Nadu many Sanskrit works were written.
– Today it is only used for religious ceremonies.

II. ANCIENT LITERATURE

1. Vedas

(a) Rigveda

– This is the most ancient book of Indian literature.
– It is divided into 10 divisions and has 1028 verses.
– Most of the verses are prayers to Gods.
– The verses worshipping Usha (Goddess of dawn) are fascinating.
– It also describes the political, social and religious life of the Aryans residing in the region of Sapt Sindhu.

(b) Samveda

– This Veda focuses on the process of recitation of verses.
– It is called the Gangotri of music

(c) Yajurveda

– It is called the Veda of yagnas.
– It is in both prose and verse form.
– There are hymns for recitation during religious practices and rituals.

(d) Atharvaveda

– This Veda describes various types of rituals and samskaras.

2. Upanishads

– This literature gives a vivid description and analysis of the beginning of the universe, mysteries of life and death, materialistic and spiritual world.
– The Bradharaniya and Chhandogya are the earliest Upanishads in dialogue form.
– There are 108 Upanishads as mentioned in Muktiko Upanishad.

3. Brahmanical Literature

(a) Aranyankas

– The Aranyankas were written by Aryans when they spent their later years in the forest.
– These were philosophical works which were a result of their deep thinking.

(b) Vedangas

– They deal with religious practices and rituals, grammar, astrology and astronomy.

(c) Puranas

– They have played an important role in explaining Vedic religion.

(d) Smruti Granths

– They explain religious teachings, laws and customs.
– Kautilya (Chanakya) wrote Arthshastra which is a book of management.
– Books were also written on different topics of mathematics and science.

(e) Great Epics

i. Mahabharata

– It is the world's largest epic.
– It is based on the war between the Pandavas and Kauravas.
– The Shrimad Bhagwad Gita is part of the Mahabharata.
– It conveys the teachings of Shri Krishna about moksha(salvation) through gyana (knowledge), karma (work) and bhakti (worship).
– It has one lakh verses. It is written by Ved Vyas.
– This epic has greatly influenced the Indian minds and literature for a long time.

ii. Ramayana

– It is the story of Lord Rama, the King of Ayodhya.
– It is written by Valmiki.
– This epic has greatly influenced the Indian minds and literature for a long time.

4. Buddhist Literature

– The early Buddhist literature was written in Pali.
– It was called Tripitika as it was divided into three setions.
– The three sections were Sukta Pitika, Vinay Pitika and Abhidhamma Pitika

5. Ancient Sanskrit Dramatists

– The Gupta period is known as the golden age of Sanskrit poems and dramas.
– There were great writers like Kalidas, Bhavbhuti, Bharvi, Bhartrihari, Banabhat and Magh.
– **Kalidas** - He is the most famous with works like Kumarsambhava, Raghuvamsham, Meghdoot, Abhigyan Shakuntalam and Rutusamhar.
– **Bana** - He wrote Kadambari and Harshacharits - a biography of King Harsha.
– **Bhavabhuti** - He wrote Uttar Ramcharita.
– **Bharavi** - He wrote Kiratarjuniyam.
– **Dandi** - He wrote Dashkumarcharita which is tale of ten princes.

– **Vishakadatta -** He wrote Mudra Rakshasa.
– **Shudraka** - He wrote Mrichhakatikam.
– These dramas were on topics like politics, romance, fables, comedy and philosophy.

6. Gujarati Literature

– As Gujarati language developed, many literary works were composed.
– Narsinh Mehta, Mirabai, Dayaram, Akho, Premanand, Pritam and others composed beautifu verses, songs, garbas, narrative poems (chhappas).
– Scholars like IMarmad, Navalram, Kirshorlal Mashruwala, Pannalal Patel, Umashanker Joshi. MahipatramRupram Nilkanth, Govardhanram Tripathi have enriched Gujarati literature with their works.

III. DRAVIDIAN LITERATURE

– Tamil was the oldest language which developed in the 1st century.
– The other languages which developed in South were Kannada, Telugu and Malayalam.
– Three literary gatherings were held according to tradition where people recited their works.
– The main themes were politics, war and love.
– The famous works include- Ethutokoi (composition of 8 poems), Tolikappiyam (Grammar) and Patthuppattu (10 songs)
– Thiruvalluvar wrote Kural which is a collection of poems on different aspects of life.
– Shilppadikaram and Manimekhalai were early Tamil literature works

IV. MEDIEVAL LITERATURE

During the beginning of the Medieval Age in North India the language of literature was Sanskrit.

A. Medieval Period Sanskrit Literature

i. Kashmir

– The first book was Somdeva's 'Kathasaritsagar'
– The second book was Kalhana's 'Rajtarangini'.
– These are first historical books of India.
– The famous work 'Geet Govind' of Jaydeva are the finest poems in Sanskrit literature

ii. Karnataka/Tamilnadu

– For some time Jainism influenced Kannada language.
– The trio of Kannada literature were Pampa, Ponna and Ranna.

Pampa - He wrote Adi Puran, Vikramarjun Vijayant.
Ponna - He wrote Shantipuran which described the life of the 16th Jain tirthankars.
Ranna - He wrote Ajitnathpuran and Gada Yudh.
Kamban - He was a poet who translated the Ramayan into Tamil language.
Raja Krishriadevrai - He was a great king of Vijaynagar. He wrote Amukta Malyada. He was a Sanskrit and Telugu writer.

B. Hindi Literature

– There were two forms of Hindi language- Khadi Boli and Brij Bhasha.
– They were used for writing literature and devotional songs.

Chandbardai- He wrote Prithviraj Raso -about the heroic deeds of Prithviraj Chauhan, which was one of the earliest works of Hindi language.
Tulsidas and Surdas -They were famous Hindi litterateurs during Akbar's reign.
Keshavdas - He wrote about love and separation.
Rahim- He wrote many Dohas.

C. Awadhi Literature

– The regional kings gave a great impetus to regional languages and literature.
– Bhakti saints preached in the languages of the people.
– Bhojpuri and Awadhi were the major regional dialects of the medieval period.

Kabir- He wrote Dohas in Sadhikhadi and they have become part of folklore.
Mulla Daood - He wrote Chandrayan which is the oldest book in Awadhi language.
Malik Mohammad Jayasi- He wrote Padmawat.
Tulsidas- He wrote Ramcharitmanas.

D. Other Regional Literature

i. Rajasthani

– Many heroic poems and stories were composed in Rajasthani language, which is similar to Hindi and Gujarati.
– The heroic works like 'Alha', 'Udal' and 'Visaldev Raso' were popular at that time.

ii. Bengali

Krittivasa- He translated the Ramayana into Bengali.
Chandidas- He was a poet who wrote hundreds of lyrics.
Chaitanya- He wrote devotional songs.

iii. Gujarati - Narsinh Mehta wrote devotional songs.
iv. Marathi -Eknath and Namdev wrote devotional songs

E. Persian Language-Literature

– It was the language used as a court language of the Delhi Sultanate.
– Many Persian words are today seen in Indian languages
– During the reign of Zainulabidin in Kashmir, the Mahabharat and Rajtarangini were translated into Persian.

(a) Ziauddin Barani

– He wrote Tarikh-e-Firozshahi- a detailed account of the reign of Khalji and Tughlag Kings.
– He also wrote a book on political theory called Fatwa-e-Jahandari.

(b) Amir Khusro

– He was the disciple of Nizamuddin Auliya.
– He wrote Ashiqua, Nuh, Siphir, Qiratul Sadayan, and Khazain-ul-Fatuh.
– He wrote in Hindawi (Hindi spoken around Delhi), which was his mother tongue and composed many verses in it and also in Persian.
– He wrote many bilingual quatrains (two language verses) in Hindi and Persian.
– He composed verses in many languages and his tradition continues.
– He called India an 'Earthly Paradise'.
– He praised India's flora-fauna, its beauty, its building, its knowledge and learning.
– He strongly believed that in many respects the essence of Hinduism resembled Islam.

F. Mughal Period Literature

Mughal Period saw great development in the field of literature as it had seen in the field of art and architecture.

i. Babar - He was one of the pioneers of Turkish poetry.
– He wrote his autobiography 'Tuzuk-e-Babari' in Turkish, which was later, translated into Persian as 'Babarnama'.
ii. Gulbadan Begum - Humayun's sister wrote his biography 'Humayun-nama'.
iii. Jahangir - He wrote his autobiography, the 'Tuzuk-e-Jahangiri'.
iv. Aurangzeb - He was a prolific (creative) writer.

v. **Bahadur Shah Zafar** - The last Mughal Emperor was a notable Urdu poet.

vi. **Akbar-** During his rule Hindi literature progressed and he had set up a, department for translating Sanskrit works like Mahabharata, Ramayana, Atharvaveda, Bhagwad Gita and Panchtantra into Persian.

– Tulsidas and Surdas wrote during his reign.
– Keshavdas wrote about love and separation.
– Rahim wrote dohas
– Abul Fazal wrote 'Ain-e-Akbari' which talks about the traditions and customs, discipline during the rule of Akbar and the 'Akbarnama'.
– Faizi was a great Persian poet who translated many Sanskrit works into Persian.

G. Urdu Literature

– The birth of Urdu language took place in the medieval period.
– It developed into one of the richest modern languages of India.
– In the early 18th century many historical works from Sanskrit got translated into Urdu.
– Muhammad Hussain Azad's Durbad-e-Akbari was the best original prose work.
– Wali, Mir Dard, Mir Taqi-Mir, Nazir Akbarbadi, Ghalib, Iqbal were some Urdu poets.

V. THE ANCIENT UNIVERSITIES OF INDIA

A. Nalanda University

– The ancient Nalanda University was situated at Badgaon of Patna district in Bihar.
– It followed more of Buddhist and Jain traditions.
– It was a pilgrimage place for Jains as Mahavir Swami visited it often.
– Since the fifth century its fame increased as Kumar Gupta built a monastery here.
– The great Chinese traveller Hiuen Tsang came here in the 7th century and he took 657 books from here to China.
– The university is in ruins today however, it was a pious place of Indian culture.
– Students from all over India and various part of the world came here to study.
– A student who passed out from Nalanda was considered an ideal student.
– It was the best centre of education from the 5th -11th century having the best library.
– Its library was called 'Dharmgunj' and there were thousands of priceless treasures of manuscripts.
– There were seven huge halls (rooms/section) in the university.
– There were 300 rooms for delivering lectures.
– Special monasteries were built as houses for the students.
– Many villages were donated for the sustenance of the University.
– Food and clothing facilities were provided free of cost from the earnings obtained from those villages.

B. Takshashila University

– This ancient university which was famous in the 7th century was located at Rawalpindi of present Pakistan.
– It was the capital city of ancient Gandhar region.
– It imparted education in 64 subjects.
– It is believed that the university was named after Taksha who was son of Bharat, brother of Lord Ram and was born in Raghukul.
– The disciples of Lord Buddha called 'Jivaks' learnt the lessons of Ayurveda here.
– Panini the great grammarian and Kautilya/Chanakya the author of Arthashastra (economics) and the mentor of Chandragupta Maurya also studied here.
– Chandragupta Maurya also studied here.

– Princes of Varansi and Prasenjit, the king of Kaushal, studied here
– Chinese scholar Fa-Hien visited this university in the beginning of the 5th century.
– Most of the students stayed'in the ashram to practice with the guru.
– The students were free to study the subjects of their interest.
– Although there was a limit of 20 students per teacher, they used to teach even more. -Students from distant cities like Varanasi, Rajgruha, Mithila and Ujjain overcrowded the university.
– Takshshila was the best centre for higher education. Education of Vedas, military science, archery, grammar, philosophy, warlore, astronomy, astrology was given here.

C. Varanasi (Kashi) University

– Varanasi was famous as a pilgrimage place and education centre during the 7th century.
– It grew as a religious centre for Aryan culture during the Upanishad period.
– During that time the king of Varanasi, Ajatshatru was a great philosopher and patron of education.
– It is mentioned in Vyas Samhita that Maharshi Ved Vyas had his ashram here.
– Lord Buddha chose Varanasi a place for the propagation of his preachings.
– Philosophers like Adi Shankaracharya had to move to Kashi to adopt the new principles of Vedantas.
– Chaitanya Mahaprabhu and Vallabhacharyaji the pioneer of a Vaishnav sect became famous from Kashi.
– A majority of the scholar families of Punjab had to migrate to Kashi white a few families migrated to Kashmir.
– Many other princes came for education in Varanasi.
– The monastery at Sarnath became a famous centre for education under the patronage of Emperor Ashoka.

D. Vallabhi University

– This university, located in Gujarat was a famous centre of education in the 7th century.
– It was the main learning centre of Hinayana sect of Buddhist religion.
– The Buddhist scholars Sthirmati and Gunmati were the principals of Vallabhi.
– Many Buddhist monks stayed here for learning.
– Brahmin students from the regions of Ganga and Yamuna came to study here.
– The rules of Maitrak Dynasty and the local people were the patrons of the university.
– The Maitraks were not Buddhist but they supported education and the institution.
– Chinese Traveller I tsing has noted that Vallabhi competed with Nalanda.
– Vallabhi was a capital city and an international harbour from 480-775 AD.
– In 775 AD the Arabs attacked and defeated the Maitraks so the university closed down.
– The names of famous scholars were written on the gate.
– The more learned scholars got higher rights in Rajsabha.
– Knowledge, worship and particular system of education made the university famous not only in India but also in the civilized world of that time.
– Students from India and abroad came for education to this university.
– Almost all the branches of knowledge were taught here.
– The maintenance of the university was done through the charity by the kings and landlords.
– It was world renowned for the knowledge of arts and science,

PRACTICE SHEET–1

1. From ancient time, Indian literature is known for its _____.
(A) Variety and quality (B) Diversity and uniqueness
(C) Dignified language (D) Expression of thoughts

2. The scholars divide Indian literature into literature.
(A) Vedic and Classical (B) Classical and Folk (C) Vedic and Medieval (D) Medieval and Ancient

3. _____has/have contributed to the development of languages.
(A) Alphabet (B) Script (C) Grammar (D) Print Media

4. Which of the following is the correct order of evolution and development of literature?
(A) Scripts, symbols, language, literature (B) Language, scripts, symbols, literature
(C) Symbols, language, scripts, literature (D) Symbols, scripts, language, literature

5. _____of the Harappan Civilization hasn't been deciphered yet?
(A) Drawing (B) Stone Inscription (C) Sculpture (D) Script

6. _____is considered to be the language of the Aryans.
(A) Tamil (B) Sanskrit (C) Hindi (D) Dravidians

7. _____language is used in many religious ceremonies even today.
(A) Hindi (B) Sanskrit (C) Prakrit (D) Gujarati

8. Who was the great grammarian of Sanskrit language?
(A) Bhaskaracharya (B) Mahavir (C) Buddha (D) Panini

9. Which grammar book was composed by Panini?
(A) Shabdanushashan (B) Vyakran Samhita (C) Ashtadhyayi (D) Ashta Vyakran

10. Panini was a scholar of which language?
(A) Sanskrit (B) Hindi (C) Prakrit (D) Pali

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
B	A	B	D	D	B	B	D	C	A

PRACTICE SHEET–2

1. At the beginning of the Medieval Age, the language used for literature in North India was
(A) Persian (B) Sanskrit (C) Hindi (D) Persian

2. _____is one of the finest poems in Sanskrit literature.
(A) Katha Saritsagar (B) Rajtarangini (C) Geetgovind (D) Shantipuran

3. The book 'Kathasaritsagar' was written by _____.
(A) Somdeva (B) Kalhana (C) Jaydeva (D) Chandbardai

4. The book 'Rajtarangini' was written by _____.
(A) Somdeva (B) Kalhana (C) Jaydeva (D) Chandbardai

5. _____are the first historcial book written in Kashmir.
(A) Kathasaritsagar (B) Rajtarangini (C) Prithviraj Raso (D) Fatwa-e-Jahandari

6. The historical books 'Kathasaritsagar' and 'Rajtarangini' were written in _____.
(A) Tamil Nadu (B) Gujarat (C) Kashmir (D) Delhi

7. _____work of Ponna is about the life of the 16th Jain tirthankar.
(A) Shantipuran (B) Ajitnathpuran (C) Adipuran (D) Gada Yudh

8. The poet Ponna wrote 'Shantipuran' describing the life of _____Jain tirthankar.
(A) 14^{th} (B) 16^{th} (C) 10^{th} (D) 23^{rd}

9. The _____wrote 'Shantipuran' describing the life of 16^{th} Jain tirthankar.
(A) Poet Ponna (B) Poet Nayannar (C) Poet Pampa (D) Poet Ranna

10. _____wrote Ramayana in Tamil.
(A) Poet Kamban (B) Poet Nayannar (C) Poet Pampa (D) Poet Ranna

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	C	A	B	A	C	A	B	A	A

PRACTICE SHEET–3

1. _____university was situated at Badgaon village of Patna district.
(A) Nalanda (B) Takshashila (C) Varanasi (D) Vallabhi

2. _____ university was a pilgrimage centre for Jains.
(A) Vallabhi (B) Nalanda (C) Takshashila (D) Varanasi

3. In the fifth century, built a monastery at Nalanda.
(A) Hiuen-Tsang (B) Kumar Gupta (C) Mahavir Swami (D) Kautilya

4. Nalanda's fame increased after _____built a monastery there.
(A) Hiuen-Tsang (B) Mahavir Swami (C) Kautilya (D) Kumar Gupta

5. The great Chinese traveler _____came to Nalanda University.
(A) Fa-Hien (B) Lao-Tse (C) Hiuen-Tsang (D) I tsing

6. Hiuen-Tsang came to Nalanda University in the century.
(A) 7^{th} (B) 6^{th} (C) 5^{th} (D) 8^{th}

7. Hiuen-Tsang took _____books from Nalanda to China.
(A) 667 (B) 675 (C) 657 (D) 676

8. There were _____halls in the university of Nalanda.
(A) Seven (B) Five (C) Six (D) Eight

9. There were _____rooms for delivering lectures.
(A) 100 (B) 200 (C) 400 (D) 300

10. The _____area of Nalanda was known as 'Dharmgunj'.
(A) Monastery (B) Main gate (C) Library (D) Main hall

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
A	B	B	D	C	A	C	A	D	C

5 – SCIENCE AND TECHNOLOGY

INDIA'S HERITAGE OF SCIENCE AND TECHNOLOGY

The discoveries and inventions in the field of Science and Technology have brought countries of the world closer. Co-operation among all the nations has increased hence new attitude has developed. Countries have become oriented towards peaceful co-existence and world peace.

Science means systematic 'Knowledge' and Technology means the practical utility of systematic knowledge'.

HERITAGE OF ANCIENT INDIA IN THE FIELD OF SCIENCE AND TECHNOLOGY

- The great sages of our ancient India have gifted invaluable heritage of science to the world. They have made outstanding contribution in the field of Metallurgy, Chemistry, Science of medicine, Surgery, Mathematics, Astronomy, Astrology, Vastushastra and Physics.
- India has contributed not only in the field of literature, art, religion, education and philosophy but also it has made immense contribution in the field of science and technology.

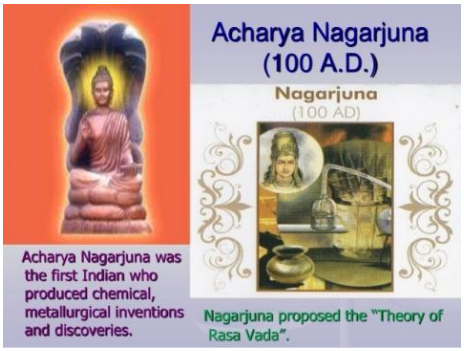
METALLURGY

- Since ancient age, the people of India use metallurgy in their practical life. Ancient India made extraordinary progress in the field of metallurgy.
- A metallic idol of a female dancer discovered from Indus valley civilization is an exemplary achievement of ancient India. Later, statues of Buddha belonging to the Kushan period have been found at Takshshila.
- In South India, during the Chola period numerous metal idols were made. The statue of Natraja, a masterpiece in sculpture is famous all over the world.
- It is preserved in a museum at Chennai Another well-known metal idol 'Ram - The archer' can be seen in the museum, artistic statues of Gods-Goddesses, birds and animals and betel-nut cutter are considered to be the best example of metallic art.

CHEMISTRY (ALCHAMICAL LORE)

- Chemistry is an experimental science. This science is very useful for various minerals, plants, seeds for agriculture, making of various metals or to bring changes in them. It is also useful for making medicine.
- Acharya Nagarjun, a learned Buddhist of Nalanda University is known as Acharya in the field of Chemistry. He had written books like 'Rasaratnakar and 'Arogyamanjari'.
- Acharya Nagarjuna advocated the use of Allopath along with herbal medicines. It is believed that the use of mercury ash as a medicine was initiated by him. Nalanda University had its own school of chemistry and furnace for study and research.
- The description of main Rasa, Uprasa, Ten types of poisions as well as various types of salts and ash of minerals is seen in the chemistry.
- The copper statues of Buddha reflect an expert knowledge and skill in the field of chemistry the copper statue of Buddha discovered from Sultangunj in Bhagalpur district of Bihar is $7\frac{1}{2}$ feet high and weighs one tonne. The statue of Buddha at Nalanda is 18 feet high.

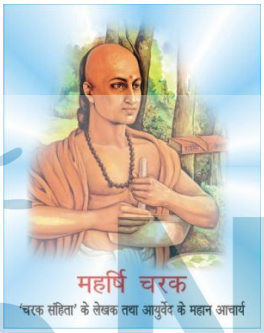
- An exquisite example is of Vijay stambha the 24 feet high iron pillar, which weighs 7 tonnes, built by Chandragupta II. Inspite of nature's fury over centuries, the pillar has not yet corroded. This is the best example of alchemical lore of India.

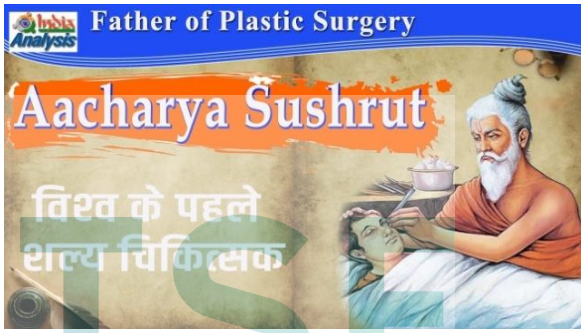



Vijay Stambha

SCIENCE OF MEDICINE AND SURGERY

- Since ancient period Maharshi Charak, Maharshi Sushrut and Vagbhatta pioneered the Indian medicine science and surgery through their intense researches and reached to the greatest height.

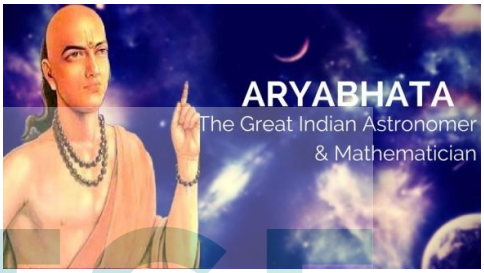




- Maharshi Charak has written a book 'Charak Samhita' in which he has mentioned over 2000 medicinal herbs. Maharshi Shushrut has mentioned instruments used in surgery.
- The instruments were so sharp that they would split a single vertical hair in two divisions Vagbhatta has written a book "Vagbhatta Samhita", is also a very important work.
- Study of Charak Samhita, Shushrut Samhita and Vagbhatta Samhita is very useful for every doctor Hindu herbal science of ancient time is enriched with huge collection of minerals and medicines from plants and animals.
- This has presented a detailed and complicated process of making medicines, their classification and their usage. They could even stop blood circulation with bowl shaped bandage.
- They could skillfully operate on abdomen, kidney cataract, hernia, stone, piles and bladder etc. They could classify, also join the broken or displaced bones and extract the things pierced into the body easily and skillfully. recognize symptoms and diagnosed the disease. They also gave dietary directions after post recovery of diseases.
- They had knowledge of plastic surgery as well joining nose and ears. They showed a keen interest in teaching students the method of surgery, by doing surgery on the dead body or on the wax statue.
- They conducted risky operations during delivery. They were expert gynecologists and pediatricians.
- Veterinary science also developed in ancient India. They wrote books on diseases related to the horses (Ashwa) and elephants (Hasti). Among them 'Hasti Ayurveda', Shalihotra and ' Ashwashastra', are well known.
- The scholars/science writer of medicine Vagbhatta made valuable contribution through his work 'Ashtang Hriday' in the field of diagnosis.

MATHEMATICS:

- The gifts of India to the world are discovery of zero, decimal systems, algebra, theorem of Boddhayan, Geometry and Arithmetic.
- Aryabhatta discovered '**ZERO**' (0), the process of writing zero after figures was discovered by the sage named 'Grutsamad'. The ancient Indian mathematicians have decided the names of the numbers made up by placing 53 zeros after l (one).
- Decimal system had been seen on the measuring and weighing instruments which had been found from the remains of 'Harappa' and 'Mohan-Jo- Daro'. It had been acknowledged by 'Medhatithi' during ancient time.
- Bhaskaracharya has written books 'Lilawati Ganit' and 'Bij Ganit' in 1150 A. D. He discovered signs of addition (+) and subtraction (-). Brahmgupta introduced the types of equations; Boddhayan discovered theorem (triangle policy).
- Aapstambha had decided the measurement of sacrificial pits (yagyavedis) used for Vedic Yagyas in 'Shulva Sutras' (1800 B.C.). It also consists analysis of principles.
- Aryabhatta had mentioned the value of π (Pie) is $\frac{22}{7}$ (3.14) in his book "Aryabhattiyam' he also propounded that π (pie) is constant to show the ratio of circumference and diameter of circle.



- Multiplication, addition, subtraction, square-root, cube-root etc, 'Ashtang' method introduced by Aryabhatta in his work hence Aryabhatta is known as the father of Mathematics'.
- Moreover he had written many other books like 'Dash Gitika' and 'Aryabhattiyam'. He has described main principles of Astronomy in short in his book named "Aryasiddhanta He found the solution of fundamentals of mathematics, i.e. Arithmetic and Geometry.
- A part from this, various aspects of Mathematics had been discussed by many scholars in their books.
- Among them, the scholars like Boddhayan, Aapastambha, Katyayan, Bhaskaracharya and Bhramhagupta are included.

OTHER SCIENCES

Many books were written on various sciences in the ancient India.

Other Sciences

S. No.	Name of books Based on Science	Authors
1.	Prajananshastra	Bhrambhravya panchal
2.	Chikitsasangraha	Chakrapanidatta
3.	Kamasutra	Vatsayayan
4.	Vruksha Ayurveda	Maharshi Parashar
5.	Yogashastra	Maharshi Patanjali
6.	Yantra sarvasva	Maharshi Bharadwaj
7.	Kaalganana	Shakmuni

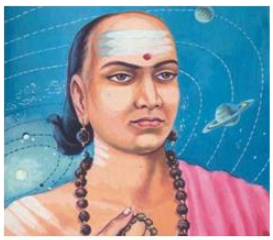
ASTRONOMY AND ASTROLOGY

- Astronomy is the most ancient science. Many works (Grantha) related to Astronomy had been written in India An organized and deep study of Astrology was made by Indian ancient universities.
- Planets and their movements, constellations and other celestial objects were used for calculations through which astrology and astronomy were developed remarkably, 'Predictions' were made on the basis of planetary movements. Aryabhatta made a remarkable contribution in the field of Astronomy.

- So the first Indian satellite was named ’Aryabhatta” on his name. He declared that the earth rotates on its own axis and he proved that the basic reason for lunar eclipse is the shadow of the earth, which was addressed as ‘Ajarbhar’ by the scholars.
- In the same manner, Brahmagupta popularized the laws of gravitation in his book "Brahmasiddhant".
- Varahmihir was the great astrologer and astronomer who divided astrology into 3 sections-

TANTRA, HORA AND SAMHITA.

- His Grantha named Brihadsamhita gives information regarding effects of planets on man's future, his characteristics, various classes of animals, the time of marriage, ponds, wells, gardens and good omen for sowing. We should feel pride that our ancestors were experts in the various sciences.



Varahmihir

VASTUSHASTRA:

- There is an immense contribution of ancient India in the field of Vastushastra It is an inseparable part of astrology.
- Vastushastra of India is being recognized, dignified and praised by many countries of the world. Brahma, Narad, Bruhspati, Bhrugu, Vashishtha and Vishwakarma have made unique contribution in the field of Vastushastra.
- They have propagated the principles of construction for dwellings, temple, palace, ashwashala, forts, store-house of ammunition and the town planning.
- The description of Vastushastra is mentioned in 'Brihat Samhita’; Rana Kumbha of Mewar revived this science in the 15th century after improving the previous versions of vastushastra.
- According to the traditional belief, Vishwakarma was the first architect of Gods. He divided 'Vastushastra into eight sections various information of Vastushastra like selection of place, shapes, structure, proper planning of things, temples, Bhramsthan, dining - room, bedroom etc.
- As the time passes by changes are taking place regarding the principles and understanding of Vastushastra.
- Ancient Indian knowledge of science has been accepted by the world. Indian culture is very vast and heterogeneous it is a blending of science and Religion, traditional ideals and practical knowledge, which is rarely seen in the other countries of the world.

Vishwakarma

PRACTICE SHEET

1. Where have the Buddha statues of kushan era been excavated?
(A) Harappa (B) Taxshila (C) Chennai (D) Patan

2. Which sculpture, from the point of view of art, has international significance?
(A) Vishnu (B) Ganpati (C) Natraj (D) Bramha.

3. Who are considered the pioneer of Indian medicine?
(A) Charak and Shushrut (B) Vikramaditya and Kumarpal
(C) Chandragupta and Samudragupta (D) Aryabhatta and Brahmaguta

4. Who is considered to be the Father of Mathematics?
(A) Brahmagupta (B) Aryabhatta (C) Charak (D) Bhaskaracharya

5. Which book was composed by Bhaskaracharya?
(A) Lilawati Ganit (B) Champawati Ganit (C) Kalawati Ganit (D) Shilawati Ganit

6. Which is not correct statement from the following?
(A) Nagarjuna is considered as a Acharya of chemistry
(B) The use of mercury ash as a medicine has been initiated by Nagarjuna
(C) Chemistry is not a science of experiment
(D) Description of metallic ashes is seen in the works of Chemistry

7. Maharshi Charak : Charak Samhita : Maharshi Shushrut : _____
(A) Shushrut Samhita (B) Vagbhatta Samhita (C) Charak Shastra (D) Shushrut Shastra

8. Book written by Bhramabhravya Panchal is _____
(A) Chikitsangraha (B) Prajananshastra (C) Mrigcharitra (D) Yantra Sarvaswn

9. In ancient India , who wrote 'Brahmasiddhant'
(A) Brahmagupta (B) Vastsyayan (C) Grutsamad (D) Maharshi Patanjali

10. Which science from the following suggests about the principle of direction while constructing temples, places, ashwashala, forts etc?
(A) Mathematics (B) Science of Medicine
(C) Chemistry (D) Vastushastra

11. Acharya Nagarjuna , a learned Buddhist of Nalanda University is known as Acharya in the field of _____
(A) Mathematics (B) Science of Medicine
(C) Chemistry (D) Vastushastra

12. Who wrote ' Rasaratnakar' and 'Arogyamanjari'
(A) Acharya Nagarjuna (B) Maharshi Parashar
(C) Maharshi Bharadwaj (D) Shakmuni

13. Vijay stambha the 14 feet high iron pillar , which weighs 7 tones , built by _____
(A) Chandragupta II (B) Ashoka (C) Akbar (D) Maharana Pratap

14. 'Hasti Ayurveda' is a book which deals with the treatment of _____
(A) Horses (B) Elephant (C) Rabbit (D) Sheep

15. _____ discovered the sign of addition (+) and subtraction (–)
(A) Aryabhatta (B) Euclid (C) Bhaskaracharya (D) Boddhayan

16. _____ discovered types of equation in mathematics

(A) Bhaskaracharya (B) Boddhayan (C) Brahmagupta (D) Katyayan

17. _____ had decided the measurement of sacrificial pits (Yagyavedis) used for vedic

(A) Yahyas in 'Shulva Sutras'. (B) Aspstambha

(C) Bhaskaracharya (D) Boddhayan Katyayan

18. 'Ashtang' method introduced by _____

(A) Aryabhatta (B) Katyayan (C) Bhaskaracharya (D) Boddhayan

19. Yogashastra is written by_____

(A) Acharya Nagarjuna (C) Maharshi Patanjali

(C) Maharshi (D) Bharadwaj Shakmuni

20. Vruksha Ayurveda is a book written by _____

(A) Maharshi Patanjali (B) Maharshi Bharadwaj

(C) Maharshi Parashar (D) Chakrapanidatta

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	C	A	B	A	C	A	B	A	D
11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
C	A	A	B	C	C	B	A	C	C

6 – PLACES OF INDIAN CULTURAL HERITAGE

The cultural heritage of India is very rich and prosperous. Indian as well as foreign visitors are attracted to visit the places of cultural and natural heritage of India. In this chapter, we shall study about these places.

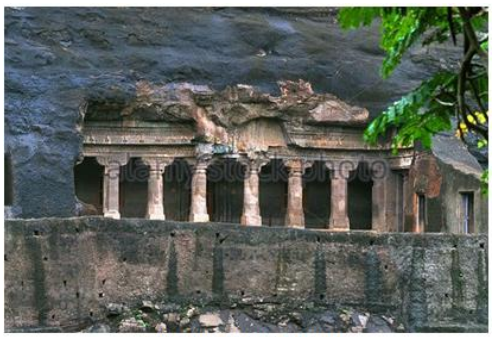
CAVES OF AJANTA

The famous caves of Ajanta are situated in Aurangabad district near Ajanta village. They are important from the point view of art of Vastu.

These caves are divided into two divisions:

(1) Caves based on wall paintings.

(2) Caves based on sculpture. Caves of number 1, 2. 10 16 and 17 have excellent paintings wall and have attained the highest rank in wall painting.



Ajanta Caves Vihara

- The theme of these wall paintings is Buddhist religion. Ajanta caves are divided into two categories, they are Chaityas and Viharas. Cave no. 9. 10, 19, 26 and 29 are Chaityas, whereas the remaining caves are Viharas.
- Ajanta caves were forgotten with the passage of time but in 1819 A.D. an English captain John Smith rediscovered them. Ajanta caves are the magnificent example of initial Buddhist art of Vastu, art of paintings and sculpture.
- Human interference and impact of time have greatly damaged them. Ajanta caves are famous not only in India but also in world for their extra-ordinary rich art. The fine blending of wonderful art of painting, sculpture and architecture of Ajanta caves has earned pride for an Indian Art.
- Chaityas -means temple-halls for Buddhist monks. Stupas are built in the interior most ends of the caves. Viharas means Buddhist monasteries where Buddhist monks reside and study.

ELLORA CAVES

Ellora caves are situated at Aurangabad district in Maharashtra. There are 34 caves in all. There are three groups of cave temples and they are different from each other:

(1) 1 -12 are Buddhist caves (2) 13-29 are Hindu caves
(3) 30-34 are Jain caves

Chaityas

- Hindu caves are built during the reign of Rashtrakuta dynasty. Kailasa temple is situated in cave no. 16. It is 50 m long, 33 m wide and 30 m high.
- This temple is carved out of a single massive rock. This temple is adorned with beautiful doors, balconies and series of pillars. The beauty of temple cannot be described in words.
- They are constructed during the time of 600 AD to 1000 AD. It is a live display of ancient Indian civilization. Caves dedicated to Hindu, Jain and Buddhist religions.
- Ellora campus is not only an example of magnificent creation of art but also best example of excellent technology. Moreover, it describes about the patience of Indians.

ELEPHANTA CAVES


Trimurti temple

- These caves are built in the Arabian sea, 12 km away from Mumbai in Maharashtra. There are 7 caves in all.
- There is a huge stone monument of an elephant, on seeing this structure the Portuguese named it elephanta.
- Many beautiful figures have been carved, out of them the magnificent "Trimurti temple" in cave no. 1 is the best specimen of sculpture. In 1987 A.D. UNESCO has placed “Elephanta Cave’’ in the list of world heritage. Local fishermen call it ‘Dhara puri’.

MAHABALIPURAM

- Mahabalipuram is located 60 kms away from Chennai. This city of Tamil Nadu is famous for its splendid temple architecture and seashore. Narsinh Varman-I, who was popularly known as Mahamalla, belonged to Pallava dynasty.
- 7 temples were built here. At present only five chariot temples exist two chariot temples have submerged in the sea. There is an amazing figure of Lord Vishnu in a smiling pose.
- Besides, there is an idol of Goddess Durga slaying Mahisasura is worth seeing. Mahabalipuram, which has an unparalleled architectural rock sculpture, was also a famous harbour of ancient time.

PATTADAKAL MEMORIAL

- Pattadakal, the capital of Chalukya dynasty is 16 kms away from Badami Nagar and Dravid style of architecture is used in the construction of temples here.
- These were built during the seventh and eighth century. Virupaksha temple is the biggest temple in Pattadakal.

TEMPLES AT KHAJURAHO


Khajuraho Temple

- These temples are located in a small village named Khajuraho at Chattarpur district of Madhya Pradesh. Khajuraho was the ancient capital city of the Chandela Rajputs of Bundelkhand, so temples were built by these kings during their reign (905 to 1050 AD).
- Presently, 25 temples are in existence. Most of them are Shaiva (Shiva) temples; where as some of them are Vaishanav and Jain temples. They all have similar type of architecture and sculpture. The 64 yoginis temples is the main temple.
- The toran (Arch) of the temple is the best example of ornamental style of architecture. All of the temples were constructed with granite stone.
- Khajuraho temples were constructed in Naagar style Art of sculpture and art of vastu of Khajuraho temples spell-bound the visitors.

SUN TEMPLE OF KONARK


Sun Temple of Konark

- It is situated near the Bay of Bengal at Puri district in Odisha. It was constructed in 13th century during the reign of King Narsinh Varman-I, who belonged to the Garg Dynasty.
- This chariot temple drawn by seven horses took the form of chariot of Sun God. It has 12 massive wheels, providing beauty to the pedatal of temple.

- These wheels reflect twelve months and each wheel has eight spokes which shows eight prahars of the day. Details of motif and subject diversity of this temple is unparalleled. This temple has been built by black stones.
- Hence, it is called as “black pagoda” Odisha. These remains reflects the sculpture and civilization of 13th century Odisha

BRUHDESHWAR TEMPLE

- This temple is located at Tanjur in Tamil Nadu. This temple was built during 1003 AD to 1010 AD. It is a Shiva Temple so it is called Bruhadeshwar. It is built by king Rajraja-I of Chola dynasty.
- It is known as Rajrajeshwar temple. The height of this temple is 500 feet, its width is 250 feet.
- It is spread in a vast area surrounded by the wall. Its summit is 200 feet high above the ground hence this temple attained the place in the temples of high pinnacles.

Bruhdeshwar Temple

- This is a marvelous heritage of architectural art of India due to its gorgeous and huge size of pinnacle and artistic decoration. In the same way, it has secured a place among the best temples of South India. It has been constructed in Dravidian style of art.

QUTUB MINAR

- Qutub Minar is located at Delhi. It was built in the 12th century by Qutubbudin Aibak, who was the founder of Gulam dynasty after his death the remaining work was completed by his son-in-law Iltutmish.
- This 72.5 m tall sky scraper is made out of round red stone and marble. Its circumference is 13.75 m at its base and it is reduced to 2.75 m at its top. Verses of Quran have been engraved on it. It is the tallest stone minaret of India.

HAMPI

- This town is situated on the bank of river Tungabhadra of Hospet, in Bellary district of Karnataka. Hampi was the capital city of Vijaynagar kingdom.
- The rulers of Vijaynagar kingdom were lovers of art. Peculiar type of architecture was developed in Vijaynagar during their reign. The period of Krishnadevaraya was considered to be the golden period of this art, as it reached to its highest peak.

Hampi

- The main feature of architecture style of Vijaynagar was to carve out huge and magnificent pillars, from the stones. Pillars and columns made were artistically adorned with the figures of Gods, Goddesses, humans, animals, warriors and dancers.
- In Hampi village of Vijaynagar kingdom, during the reigns of Krishnadevaraya the Vithala temple and Hajra temples were built besides it. Virupaksha temple, Achyutaray temple of Lord Krishna are the best examples of architecture.

HUMAYUN'S TOMB

- The tomb of Humayun at Delhi is the best specimen of the Mughal architecture. After the death of Humayun, it was built by his wife queen "Hammeda begum". This tomb was made in Iranian style of art. Red and white stones were skillfully used in it.

FORT OF AGRA

- 'Fort of Agra' is in the Agra city of Uttar Pradesh. It is made up of red stones, hence it is known as red fort. It was built by Akbar in 1565 AD.
- We can see the reflection of Hindu and Iranian style of art in it. The fort has 70 feet tall wall with 1.5 mile circumference. Red stones are skillfully embedded on the wall in such a way that no cracks can be seen on the wall.
- Jahangir palace was built by Akbar in this fort. The architectural style of Bengal and Gujarat on Jahangir Palace can be seen clearly. Sahajahan had spent the last days of his life in this fort.

TAJ MAHAL

- Taj Mahal is located at Agra in UP on the bank of river. Taj Mahal is one of the Seven Wonders of the World. It was constructed by Mughal King Shahajahan in the memory of his queen Mumtaz Mahal. Mumtaz Mahal died in 1630 AD. After her death the construction of Taj Mahal started in 1631AD.
- It was completed in 1653 AD after 22 years. Shahajahan used expert Indian sculptors besides Iranian, Arabian, Turkish and European sculptors/artisans were also engaged in the construction of Taj Mahai. Taj Mahal is counted as one of the best tombs of the world.
- Due to this tomb, the name of Murntaz Mahal has become immortal; this was the innermost wish of Shahajahan. The building of Taj Mahal is spread in rectangular shape from North to South.
- The grave of Mumtaz lies in the centre of Taj. It is surrounded by beautiful artistic octagonal fence, carved out of stone.
- A beautiful saying is inscribed on one of its archs. "Pious hearts are welcomed in the garden of paradise". The architecture of Taj glorifies the rich heritage of India.

RED FORT

- Red Fort located at Delhi was built by Shahajahan in 163 8 A.D. This fort is made of red stone. Sahajahan founded city namely Shahajahanabad in the same fort, which was named after him.
- This fort includes Diwan-e- Aam. Diwaan-e-khas. Rang Mahal etc. Diwan-e-khas is more magnificently decorated than other buildings. It is decorated with an amalgamation of gold and silver, embedded with precious stones .
- The other buildings of Red fort are Rang Mahal, Mirror palace (Aaina Mahal) of Mumtaz. Lahori gate, Meena bazaar and Mughal Garden etc. which are the centre of attraction. Red Fort Peacock throne is the best exquisite creation of this fort, which Nadir shah took along with him Iran.
- Red fort is one of the outstanding buildings among the mughal art of architecture. Every year our Indian flag is hoisted on the Red fort on national festivals.
- It is 26 miles away from Agra in Uttar Pradesh. Akbar has founded this city in the memory of sufi saint Shaikh Salim Chisti, he made it his own capital city.
- The building construction of Sikri as started in 1569 AD and completed till 15 72 AD. The best buildings among them are palace of Birbal, Golden palace of Bibi Mariam, palace of Turkey Sultan, Jama Masjid and Buland Darwaza. Buland Darwaza of Fatehapur Sikri is 40m wide and 50 m high.
- The other known and remarkable buildings of Sikri are palace of Jodhabai, Panch Mahal, Tomb of Saikh Salim Chisti, Diwan-e-aam, Diwan-e-khas and Jyotish Mahal.

CHURCHES OF GOA

- The Christian missionaries came to India with the Portuguese to spread Christianity. Goa was the capital of the Portuguese.
- Many churches were built in Goa like church of Besalika of Bom Jesus and Besalika of God Jesus are in old Goa. The relics of St. Francis Xavier is kept in a coffin in a church of Goa.
- His dead body has not decayed even after so many years. Beside there are many churches in Goa. It is well renowned for its beautiful beaches and its artistic churches.

Besalika of Bom Jesus

CHAMPANER

- Champaner is situated in the foot hills of Pavagadh at Halol taluka in Panchmahal district of Gujarat.
- After the victory of Champaner, Mahmud Begada gave it the position of capital and named it Muhammadabad. Moti Masjid, Jama Masjid and Historical fort are different buildings in Champaner.
- Considering art of architecture and historical importance of Champaner, UNESCO has declared this town as a site of world heritage.

Jama Masjid Champaner

PLACES (MONUMENTS) OF CULTURAL HERITAGE OF GUJARAT

- Gujarat has the foremost place in the field of sculpture and architecture. Many beautiful architectural sites can be seen here for e.g. cave architectures, temples, forts, vav (step-wells), archs etc.

DHOLAVEERA AND LOTHAL

- Dholaveera and Lothal were the main cities of Indus Valley civilization. Dholaveera is situated in Khadirbet at Bhachau taluka in Kuchchh district.
- Dholaveera is known for its ideal town planning whereas Harappan culture was renowned as a centre of trade and commerce. 5000 years ago from today, bead making factories and ornament making shell were found out from at Dholaveera.

LOTHAL

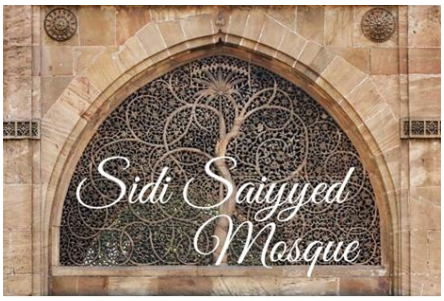
Lothal is situated near Ahmadabad- Bhavnagar highway is an architectural place, which was main centre of trade and commerce and well facilitated port of Harappan culture in the ancient times.

JUNAGADH

In Junagadh, stone inscription of Ashoka, Buddhist caves of Khapra Kodiya, Vav (Step-well), old Rajmahal, Navghan Well and tomb of Bahauddin Vazir's etc. places are worth seeing. Bhavnath fair is held in the foot hills of Girnar on Mahashivratri.

Bahauddin Vazir's

AHEMDABAD



- Ahemdabad could be known as a historical city. Fort of Bhadra, Jama Masjid, Mosque of Queen Sipri, Roza of Sarkhej, Kankariya Lake, Shaking Minaret (Jhulta-Minara), Sidi Saiyed Jali (Grill), Temples of Hathi Sinh, Mosque of Queen Roopmati are worth seeing architectures of Ahmadabad.
- The shaking Minarets outside Sarangpur darwaza in Raipur-Gomtipur are well known for its unsolved secret of vibration. The Sidi-Saiyed Grill is famous for its vegetational geometrical creation and minute carving.

PATAN (NORTH GUJARAT)


Rani ni vav

- Sahastralinga lake in Patan, step-well of Queen (Rani ni vav) and Rudra Mahalaya of Siddhapur are worth seeing architectures. The ruin Rudra Mahalaya in Siddhpur suggests the grandeur of palace which is situated 26 km away from Patan.
- Udaymati, queen of Bhimdev-I built vav (step-well to cater the need of water to her subjects (public) which is known as step-well of queen (Rani ni vav).
- UNESCO included this vav as a world heritage monument in 2014. This vav indicates the beautiful arrangement of water harvest for public usage in ancient time. Siddhraj Jaysingh built a lake named Sahastralinga lake in 1140 A.D.
- Apart from the fort at Vadnagar, Sharmishta lake and arches are worth seeing monuments. Arches are created on the two erected pillars; creating shape like bow.
- Shamlaji Temple situated on the bank of Meshwo river is an ancient place for pilgrimages. This art of architecture is marvelous.
- Many Stupas and Viharas were built in Gujarat during Kshatrap period. The remains of Buddhist Stupas are found from Bordevi of Junagadh district, Dev ni mori near Shamlaji, Intva stupa in Gimar near junagadh etc.
- Besides these many other architectures of Dev ni mori Bavapyara, Uparkot, Khapra Kodiya, Khambhaliya, Talaja, Sana, Dhank, Jhinjhurijhar, Kadiya Dungar etc. are seen in Gujarat.
- Vav is a well with steps having one, two, three or four openings and three, six, nine or twelve floors. Nanda, Bhadra, Jaya and Vijaya are the main types of vav.
- Step-well of Adalaj near Gandhinagar, Step-well of Queen of Patan, Adi-Kadi step-well at Junagadh, apart from this Nadiad, Mehmedabad, Umrath, Kapadwanj, Vadhwan and Kaleshwari (Mahisagar district) etc. are the examples of Vav Architecture.
- There are many Jain temples on Shetrunjya mountains at Palitana in Bhavngar district. Few of the temples were built in 11th century. Taranga Pilgrim is situated the hills near Timba village at Kheralu taluka in Mehsana district. The temple of Taramati is also here.
- Somnath temple at Gir Somnath district and Dwarkadhish temple of Devbhoomi, Dwarka gorgeous historical heritage. The list of Gujarat's cultural heritage has not been complete yet. Such places are there in Gujarat which makes our cultural heritage rich and prosperous.

SOUTH INDIAN TEMPLES OF ANCIENT INDIA

Temples of South India are famous their different style. They were made in Dravid Style of art. They are in Pyramidal shaped with multi storey. One attractive stone is placed on its top. Yard of temple was very huge. Many South Indian temples built in ancient time are as given below:

Name of temple	Place
Mahabalipuram	Mahabalipuram- Tamil Nadu
Kailash Temple	Kancyhipurma-Tamil Nadu
Bruhdeshwar Temple	Tanjavur-Tamil Nadu
Virupaksha Temple	Pattadakal-Karnataka
Parashurameshwar Temple	Bhuvneshwar-Orissa
Vaikuntha Perumal Temple	Kanchipuram-Tamil Nadu

PLACES OF PILGRIMAGES IN INDIA

- India has been a land of pilgrimages since ancient time. People of India go on pilgrimage he journey of chardham and Twelve Jyotirlingas includes Badrinath (Uttarakhand), Rameshwar (Tamil Nadu), Dwarka (Gujarat), Jagannathpuri (Odisha). Moreover pilgrimage of 51 Shaktipeeths and Amamath yatra are considered as one of the most important.
- Gimar (Lili Parikrama), Shetrunjya Pradakshina and Narmada Pradakshina have great importance. India is a treasure house of rich cultural heritage.
- In this way places of Indian cultural heritage gave India a unique identity in the world. The tourists from India and abroad visit Indian art of architecture regularly.
- This accelerates economical benefits of accelerated economical benefit of tourism industry in India. Thus 32 monuments of Indian cultural and natural heritage have been included in the world heritage site by the UNESCO.

PRACTICE SHEET

1. Who founded the city of Fatehpur Sikri?
(A) Babar (B) Akbar (C) Shahjahan (D)Humayun

2. Pongal is the main festival of which state?
(A) Karnataka (B) Kerala (C) Tamil Nadu (D) Andhra Pradesh

3. Which is the main festival of Assam?
(A) Bihu (B) Onam (C) Gana Gora (D) Ganesh Chaturthi

4. Where are Ajanta-Ellora Caves situated?
(A) Gujarat (B) Maharashtra (C) Karnataka (D) Goa

5. At which place in Delhi is the Flag Hosting Ceremony performed on 15th August?
(A) Agra (B) Red Fort (C) Qutub Minar (D) Fatehpur

6. Which State is famous for Tarnetar Fair?
(A) Gujarat (B) Kerala (C) Maharashtra (D) Rajasthan

7. In famous Ajanta caves cave number __ ,___,___,___,___ have excellent paintings wall and have attained the highest rank in wall painting
(A) 2,4,7,9,13 (B) 1,2,10,16,17 (C) 1,3,5,13,17 (D) 1,4,10,15,16

8. Ajanta caves were rediscovered in the year_____
(A) 1829 (B) 1835 (C) 1819 (D) 1872

9. John Smith rediscovered _____ caves
(A) Ajanta (B) Ellora (C) Elephanta (D) None of these

10. _____ means temple halls for Buddhist monks
(A) Viharas (B) Chaityas (C) Stupas (D) None of these

11. Ellora consist of _____ caves in all
(A) 27 (B) 31 (C) 34 (D) 38

12. Elephanta caves consist of ____ caves in all
(A) 6 (B) 8 (C) 10 (D) 7

13. In _____ UNESCO has placed “Elephanta Cave” in the list of world heritage
(A) 1987 (B) 1993 (C) 1989 (D) 1991

14. Local Fishermen call it ‘Dhara Puri’. Which UNESCO world heritage site are we talking about
(A) Ajanta (B) Ellora (C) Elephanta (D) Sun Temple

15. Mahabalipuram is located in which of the following state?
(A) Karnataka (B) Andhra Pradesh (C) Kerala (D) Tamil Nadu

16. Pattadakal is the capital of _____ dynasty.
(A) Chalukya (B) Pandya (C) Chola (D) Rashtrakutas

17. Khajuraho temple are located in which of the following district of Madhya Pradesh
(A) Ashoknagar (B) Gwalior (C) Datia (D) Chatarpur

18. Most of the temple at Khajuraho are dedicated to _____
(A) Shiva (B) Vishnu (C) Jain (D) None of these

19. Khajuraho temple were constructed in _____ style
(A) Naagar (B) Dravida (C) Badami Chalukya (D) Gandhara

20. Sun Temple of Konark was built during the reign of King Narsinh VarmanI who belonged to _____
(A) Chalukya (B) Pandya (C) Garg (D) Gupta

21. Sun Temple of Konark was built with _____
(A) Red Stones (B) Marble (C) Black Stone (D) None of These

22. Bruhdeshwar temple is located at Tanjur in _____
(A) Karnataka (B) Andhra Pradesh (C) Kerala (D) Tamil Nadu

23. Bruhdeshwar temple is dedicated to _____
(A) Shiva (B) Vishnu (C) Shakti (D) Ram

24. Qutub Minar was completed during the Period of _____
(A) Qutubbudin Aibak (B) Iltutmish (C) Balban (D) Allauddin Khilji

25. Humayun's tomb was built by _____
(A) Akbar (B) Gulbadan Begum (C) Hammeda Begum (D) Jahangir

26. ShahJahan had spent last days of his life at _____
(A) Taj Mahal (B) Fort of Agra (C) Red Fort (D) Jama Masjid

27. A beautiful saying is inscribed on one of its archs " Pious hearts are welcomed in the garden of Paradise". Which monument are we talking about
(A) Red Fort (B) Shlimar Garden (C) Hanging Garden (D) Taj Mahal

28. Red Fort consist of several areas out of which _____ is most magnificently decorated
(A) Diwan-e-Aam (B) Diwan-e-khas (C) Rang Mahal (D) Mirror Palace

29. Fatehpur Sikri was founded by Akbar in the memory of which Saint?

(A) Nizamuddin Auliya
(B) Shaikh Salim Chisti
(C) Moinuddin Chishti
(D) Qutbuddin Bakhtiar Kaki

30. The relics of _____ is kept in a coffin in a church of Goa. His dead body has not decayed even after so many years

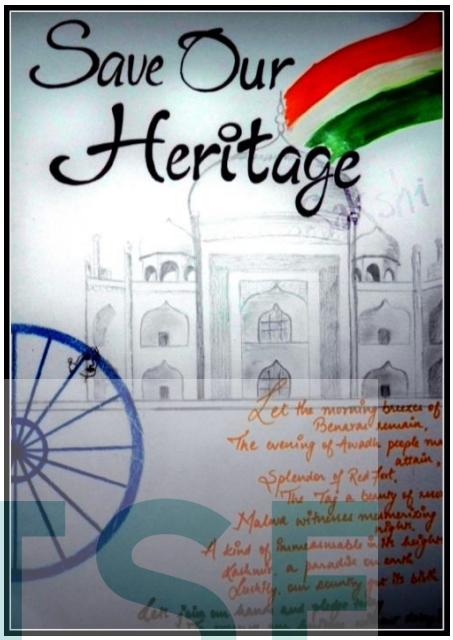
(A) St. Francis Xavier
(B) Saint Francis of Assisi
(C) Saint Anthony of Padua
(D) Peter Faber

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
B	C	A	B	B	A	B	C	A	B
11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
C	D	A	C	D	A	D	A	A	C
21.	**22.**	**23.**	**24.**	**25.**	**26.**	**27.**	**28.**	**29.**	**30.**
C	D	A	B	C	B	D	B	B	A

7 – PRESERVATION OF OUR HERITAGE

India has a unique place in the world. There has been a remarkable contribution of India in the field of knowledge, science, religion, culture and art. That is why, we should be committed towards the preservation and conservation of our heritage which is utmost demand of the present time.

NEED FOR THE PRESERVATION OF CULTURAL HERITAGE



- The heritage of India is multifarious which brings glory to the nation. Cultural heritage accommodates sculpture, architecture, literature, various arts and natural heritage. Natural and manmade factors are adversely affecting our heritage, hence its preservation is required.
- We should preserve vanishing arts and architecture so that upcoming generations can be inspired by the works done by our ancestors.
- As we are not much aware about the preservation of our heritage and our negligence is chiefly responsible for its degradation, therefore it has become necessary to preserve our heritage.

NECESSITY OF PRESERVATION OF CULTURAL HERITAGE

- Our heritage is the identity of the nation. The country which ignores it does not have any future as heritage is our guide. The errors we have committed in the past can be rectified in the present and we can properly plan for the future.
- Heritage acts as a guide to decide the direction of our development. Heritage is necessary for the transmission of new consciousness across the country.
- It is necessary to bring awareness among the people regarding the damage done to the places of cultural and natural heritage. Not only the government but also the common public should play their vital role for the protection of our heritage.
- As the heritage is considered as an ideal for the people, it is necessary to cease its degradation. Greater damage has been done to our heritage because of the invasion of foreign tribes and our unawareness.
- So it is the moral duty of the government as well as of common public to conserve and preserve our heritage.

TOURISM INDUSTRY AND OUR HERITAGE

- Various sites of natural and cultural heritage of India have been accommodated in the list of the world heritage by UNESCO. Many people come to visit, to explore and to do research on our heritage from India and other countries.
- This boosts our tourism and transportation industry. Along with the economic benefits to the concerned states, tourism industry provides appropriate opportunity and proper platform to showcase our multifarious cultural arts and traditions in front of the world.

- Apart from this, tourism also provides employment to the local people and this keeps the vanishing art and tradition alive. Now a day tourism as a subject has been added in the field of education which is eventually promoting tourism guide as an independent business.
- India earns foreign currency from the foreigners. visitors. Introducing a heterogeneous culture, it enlightens the talent of our country at the international level.
- Facilities like metalled road, railways, water, communication etc are developed around the sites of heritage. Tourism encourages activities like photography, horse riding, boating etc. simultaneously provided employment to street hawkers.
- Varied culture, indigenous art and their features have got a proper platform for the development.

PRESERVATION OF HERITAGE AND MEASURES TO CONSERVE

Efforts made for the preservation and conservation of heritage are given below:

- Indian government has constituted the Indian board of wildlife in 1952 to protect our wildlife. It facilitates with material for the conservation of wildlife. It suggests government for the development of national park, bird sanctuary and geological gardens along with the task of creating awareness for protection of wildlife.
- Wildlife Protection Act enacted in 1972 gave a firm status to the national parks, sanctuaries and bio reserves.
- New national parks, wildlife sanctuaries and bio-reserves have been established.
- The laws of our country for the preservation of our heritage have a wide perspective.
- Strict laws have been framed to stop the destruction of vanishing vegetation and wildlife.
- Apart from government, there are several societies and organizations which have been actively taking up the task of protection of wild life and environment.

The Bombay Natural History Society is the oldest one of its kind and was established in 1883. Presently Gir foundation, Natural club etc. institutions are doing noble work of environmental preservation. Realizing the importance of the preservation of our heritage, Constitution framers made it mandatory that it should be included in our Constitution.

The Bombay Natural History Society

ANCIENT MEMORIALS AND ARCHAEOLOGICAL SITES AND REMAINS ACT:

- The more dangerous and harmful factors arose in the way of heritage, The more strict actions and efforts were made time to time for preservation. Hence various protective measures have been taken for the safeguard of heritage.
- Ancient Monuments and Archaeological Sites and Remains Act was enacted in 1958. This act suggests for the preservation of antique artistic work, religious places, historical memorials and archaeological sites etc.
- This Archaeological Act ensures that no person or agency can conduct archaeological excavation without the prior permission of government. This action consequently stopped clandestine excavation, hence many of our heritage sites are still preserved and kept intact.
- The government of India declared some historical places as “National Monuments’’. Department of Archaeology is responsible to look after the preservation of these monuments.
- Department of Archaeology maintains sites of heritage which are either destroyed or on the verge of destruction.
- While taking up the work of maintenance of monuments one should keep in the mind that they should be preserved in such a manner so that it retains its original shape, size and condition intact.

- Department of Archaeological Survey of India (ASI) has more than 5000 monuments and sites under its protection.
- Sangameshwar temple and Papnasham temples in Andhra Pradesh were going to be submerged into the sea due to the construction of Nagarjun Sagar Multipurpose Project. Therefore, these temples have been successfully shifted to Alampur at Mehboobnagar district of Andhra Pradesh.
- Taj Mahal of Agra is one of the Seven Wonders of the World. Air pollution caused by Mathura oil refinery and fast growing nearby industries, turned the white marble pale and dull.
- The department of archaeology took suitable steps to close the industries spreading air pollution in its neighborhood. Regular cleaning of the structure has brought back the brightness of the Taj Mahal.

OUR ROLE IN THE PRESERVATION OF THE MUSEUMS

- According to the Indian Treasure Trove Act, 1876, if any citizen suddenly finds any ancient artistic and antique article from a house, field, well, lake, etc. while digging then he has to immediately notify to the officer of archaeological department.
- With this small effort they can preserve valuable things which could have been lost due to the carelessness. Government has tried to obtain information regarding personal or private museums consisting expensive artistic pieces under the act of 1972.
- Systematically archived documents corresponding to each state provides better guidance to the historians and researchers. Museums performs important task of preserving valuable things carefully.

The best examples of the museums are given below:

Museums in India

S. No.	Name	City	State
1	National Museum	New Delhi	Delhi
2	Indian Museum	Kolkata	West Bengal
3	Chhatrapati Shivaji Maharaj Vastu Museum (Prince of Wales)	Mumbai	Maharashtra
4	Salarganj Museum	Hyderabad	Andhra Pradesh
5	Rashtriya Manav Sangrahalaya	Bhopal	Madhya Pradesh
6	Labhai Dalpatbhai Museum (L.D. Institute of Indology)	Ahmadabad	Gujarat
7	Shri Mahavir Jain Aradhana Kendra, Koba	Gandhinagar	Gujarat
8	Shri Hemachandracgharya Library	Patan	Gujarat
9	Vadodara Museum and Picture Gallery	Vadodara	Gujarat

It is a combined duty of general public and government to generate awareness towards the preservation and the protection of the museums.

Vadodara Museum and Picture Gallery

OUR ROLE IN THE PRESERVATION OF HERITAGE

- If the Central and State governments, UNESCO, and NGOs (Non-Government Organizations) are performing their duties to preserve our valuable heritage then as individuals one should play an effective role in that direction.
- Teachers in the schools and colleges should impart the knowledge of India's glorious heritage. Students as well as common public should gain the knowledge of unfamiliar places, monuments, ancient remains, sites etc.
- They should help in their preservation and protection everyone should take care of these monuments by preparing the list of all heritage sites. Valuable things should not be destroyed, broken or stolen.
- Schools, colleges and NGOs should conduct programs like visit to the historical places and sites, speeches, exhibitions, discussions, seminars etc. to create awareness towards the preservation of heritage.
- If the specimen of the architecture, sculpture and historical monuments are destroyed once, it is very difficult to restore them to the original form. So it is our moral duty that they should not be destroyed and shifted to other place.
- There are many ancient ponds, lakes, wells, step wells, streams, springs etc in different places in our country. We should take special care of Malav lake of Dholka, Rani ni vav of Patan, Well of Champaner, Bhamario Well of Mehemdabad, Navghan well of Junagadh etc, during the monsoon. We should constantly keep an eye on their preservation.

CLEANLINESS AND PRESERVATION OF PICNIC SPOTS

Central and state governments are taking proper steps for the cleanliness and preservation of our picnic spots. Consequently special arrangement has been made for it.

Religious, historical places have always been a greater attraction among the local as well as foreign tourists. Henceforth, our government is attentive enough towards its preservation.

- Do not use plastic.
- Do not litter at picnic spots, use dustbin.
- Do not spoil historical monuments either by writing or drawing picture.
- Proper disposal of waste.
- Do not spit after eating tobacco or Paan (betel).
- Do not pollute surrounding areas of historical monuments.
- Expensive care should be taken during monsoon of historical monuments which constitutes step-wells, lakes, ponds, streams etc.
- Be cautious while cleaning monuments with archaeological chemical methods.
- Sensitized domestic and foreign visitors to avoid damage of our historical heritage.
- If natural disasters has caused damage to the historical places, make efforts to bring it again to the original form.
- It is our responsibility to maintain beauty and cleanliness of tourist places as they bring fame and prosperity to the nation. We should make use of science and technology to maintain the originality of our ancient heritage.

INDIA: UNITY IN DIVERSITY

- Being one of the most ancient civilizations of the world, India has varied and rich cultural heritage. Diversity of India is its unique identity.
- Yet, India stands united and undivided. India has proved the feelings of 'Vasudhav Kutumbakam". The whole world is a family.

- This feeling exists in India since Vedic periods. “Let us get good thoughts and vibrations from all four directions” is the message of Rig Veda’s, which showcases the grandeur and glory of Indian culture. India has spread religious tolerance and secularism across the world.
- Swami Vivekananda said the following words in the “World Religious Conference” which was held in Chicago (US). “I am proud to say that, I represent the religion that has taught the lessons of tolerance, compassion and universal fraternity to the world.”

Swami Vivekananda at the World Parliament of Religions, Chicago, 1893

- India is a secular country. India is a land of multi-religious; influence of Hinduism, Islamism Buddhism, Jainism, Christianity etc. is seen in Indian culture.
- Therefore, the torch bearers named our country as “Bharat Varsha” by stressing on its unity, which reflects upon our broad outlook. Holy names of 7 sacred rivers have been used in our prayers.
- As at the end of the day all the rivers amalgamate into the great ocean, equivalently our country conglomerates different religions, pastes, languages, traditions, creed, customs and festivals.
- The people of India live their life with the feelings of co-existence. The people of India have conserved this quality and have wonderfully enhanced it.

PRACTICE SHEET

1. Indian government has constituted the Indian board wildlife in _____ to protect our wildlife
(A) 1954 (A) 1952 (C) 1963 (D) 1969

2. Wildlife Protection Act enacted in _____
(A) 1975 (B) 1972 (C) 1973 (D) 1971

3. ASI stands for _____
(A) Archaeological Survey of India (B) Institute of Archaeological Survey
(C) Archaeological standard of India (D) Archaeological service and Institute

4. National Museum is located in which city
(A) Kolkata (B) Mumbai (C) New Delhi (D) Hyderabad

5. Salarganj Museum is in which of the following state
(A) West Bengal (B) Madhya Pradesh (C) Maharashtra (D) Andhra Pradesh

6. Shri Mahavir Jain Aradana Kendra is in which of the following cities
(A) Patan (B) Vadodra (C) Gandhinagar (D) Ahmadabad

7. Rashriya Manav Sangrahalaya Pradesh is located in which city
(A) Nagpur (B) Rachi (C) Raipur (D) Bhopal

8. "World Religious Conference" in which Swami Vivekanand participated was held at _____
(A) Chicago (B) New York (C) Washington D C (D) San Francisco

9. The Bombay Natural History Society was established in _____
(A) 1986 (B) 1883 (C) 1898 (D) 1925

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.
A	B	A	C	D	C	D	A	B

ECONOMICS

1 – ECONOMIC DEVELOPMENT

ECONOMIC DEVELOPMENT

Economic development is a stage where there is increase in the National Income and increase in the per capita income of the citizens.

PER CAPITA INCOME:

When the total income of the country is divided by the total population it is called per capita income.

$$\text{per capita income} = \frac{\text{Total income of the country}}{\text{Total population}}.$$

If the increase in income improves the life style of the people and their standard of living it is called development. Living standard improves with facilities of basic necessities like food, clothing, shelter, education, health and other infrastructural facilities.

India is a developing country while USA is a developed country.

National income (GDP) of India which was Rs.87,36,039crores in 2011-12 has increased to Rs.1,35,67,192 cores in 2015-16.

DIFFERENCE BETWEEN ECONOMIC PROGRESS AND ECONOMIC DEVELOPMENT

In ordinary sense economic progress as well as economic development, both the words show an increase. But there is a lot of difference between both of them. They are as follows:

ON THE BASIS OF DEVELOPMENT PROCESS

Economic progress is a quantitative growth while development is a qualitative growth.

Economic development is first stage, while economic progress is the stage after economic development. For e.g. Increase in income is called economic progress but improvement in standard of living is called development.

ACCORDING TO CHANGES TAKING PLACE IN ECONOMY

When there is increase in production it is termed as economic progress but if along with increase in production there is use of new research and technology it is termed as development. For e.g. increase in agricultural produce is called progress but increase due to use of hybrid seeds and organic farming is called development.

IN RELATION TO DEVELOPED AND DEVELOPING NATIONS

Increase in national income of developed countries is called economic progress, while increase in national income of developing countries is called economic development.

FEATURES OF A DEVELOPING ECONOMY

According to the World Bank Report of 2004, the countries having per capita income up to $ 733 are called Developing Economies. India is an example of such an economy. The basic features of developing Country are:

Less Per capita Income

- ✓ The National income of developing countries is less and their population growth rate is high.
- ✓ The per capita income is low- it is less than $735.
- ✓ Because of less per capita income, living standard of people is low.

High Population Growth

The annual population of a developing country grows at a rate of 2% or more in these nations.

Dependence on Agriculture

- ✓ The main occupation in most of the developing countries is agriculture.
- ✓ More than 60% of the population is dependent on agriculture for employment.
- ✓ Contribution of agriculture in National Income of these nations is about 26%.

Unequal Distribution of Income

- ✓ Unequal distribution of income and factors of production is seen in developing countries.
- ✓ The 20% rich people of the country share 40% of national income while the poorest 20% share 10% of national income.

Unemployment

- ✓ Most of the developing countries suffer from unemployment.
- ✓ The ratio of unemployment is more than 3% of total labour and the duration is also long.
- ✓ Different types of unemployment are also seen like seasonal unemployment, disguised unemployment and industrial unemployment.

Poverty

- ✓ In developing countries poor people living below poverty line constitute one third of population.
- ✓ Those who are not able to satisfy their primary (basic) necessities like food, clothing, shelter, education and health are called poor.

Dual Economy

- ✓ Developing countries have dual economy.
- ✓ On one hand there is traditional method of farming and on the other there is modern method that exists.
- ✓ For e.g. There are poor farmers who still use ploughs, bullock carts and there are landlords who use tractors, threshers and own latest cars.

Insufficient Infrastructure Facilities

Developing countries lack infrastructure facilities like communication, transport, shipping ports, electricity, banking, education and health.

Unique form of International Trade

- ✓ The structure of foreign trade of developing countries is different.
- ✓ These countries mainly export agro-products and mineral ores.
- ✓ These products have less demand so less income is gained by exporting them.

Economic and Non-economic activity

An activity which is done with the aim of earning money is called **economic activity.**
For e.g. A teacher teaching in the school and earning a salary. A farmer, a businessman do. economic activity.
If an activity is done for love, affection, moral duty or welfare and not for earning money is called **non-economic activity.** For e.g. A teacher teaching her own child at home.

SECTORS OF THE INDIAN ECONOMY

All occupations are economic activities and they are classified into three sectors of the economy in any country. In India we have the following divisions of economic activities:

A. Primary Sector

The Primary sector includes all activities related with nature like agriculture, cattle rearing, fishing, poultry farming, collection of forest products and mining.

Primary sector dominates in a developing country and contributes the most in employment generation and National Income.

B. Secondary Sector

It includes manufacturing activities like small and large scale industries, factories, construction, electricity, gas and water supply. This sector produces small things like pins to gigantic machines.

C. Service Sector

It includes activities like (WIBCATHE) waterways, warehousing, insurance, banking, communication, airways, transport, trade, tourism, health, education and entertainment.

Primary sector dominates in a developing country and contributes the most in employment generation and National Income.

With economic development the importance of the primary sector decreases and the importance of secondary and service sector increases.

FACTORS OF PRODUCTION

There are four requirements for the activity of production. They are also called factors of production. They are:

A. Land

- ✓ It is a natural factor of production.
- ✓ It includes forests, rivers, and minerals.
- ✓ Its quantity cannot be increased but its quality can be improved.
- ✓ Land as a factor of production earns rent.

B. Labour

- ✓ It is a living factor of production.
- ✓ There are two types of labour activities done to earn money - mental and physical work. – A labourer earns wages or salary.

C. Capital

- ✓ It is a manmade factor of production.
- ✓ It includes money, machines, material, assets and investment.
- ✓ It earns interest as income.

D. Entrepreneurship

- ✓ The person who brings together all the above factors of production and co-ordinates the production activity is called entrepreneur.
- ✓ He pays the three factors their dues and takes home profit.

NEED FOR DISTRIBUTION OF FACTORS OF PRODUCTION

The following are the needs for distribution of factors of production:

A. Unlimited wants

- ✓ Wants are desires of people and they need to be fulfilled so they become wants.
- ✓ Wants are of three types- primary or basic wants, comfort wants and luxury wants.
- ✓ Human wants are unlimited but resources to satisfy them are limited.
- ✓ Many wants arise from a single want.
- ✓ There are many wants that are repetitive in nature and need to be satisfied again and again. -Many wants have arisen due to development in science and technology.
- ✓ To satisfy these wants we have to decide their need and importance as resources are limited.

B. Order of needs as per their importance:

- ✓ As wants are unlimited and resources to satisfy them are limited, it is necessary to decide the wants which need to be satisfied according to their importance.
- ✓ The primary wants are first satisfied then the comfort and luxury wants.
- ✓ The other wants may be postponed or forgotten.

C. Limited Resources:

- ✓ Resources are those which help us to satisfy our wants.
- ✓ These resources are limited so they should be used rationally and the best use should be made to satisfy human wants.

D. Alternative use of the Resource:

- ✓ Resources are those which help us to satisfy our wants.
- ✓ These resources are limited so they should be used rationally and the best use should be made to satisfy human wants.
- ✓ Resources are not only limited but they also have alternative uses.
- ✓ For e.g. If in a farm wheat is sown then though there are alternative crops that can be grown in it like millet, maize and groundnut they have to be forgotten as the land is used up for growing wheat.

METHODS OF RESOURCE ALLOCATION

- ✓ Every nation tries to attain speedy economic development by making the best possible allocation of resources.
- ✓ Allotment of resources is mainly done by two methods:

A. Market Mechanism

- ✓ Private ownership of resources and main motive is profit.

B. Socialist System

- ✓ State ownership and welfare is the motive.
- ✓ Both the systems are opposite to each other.
- ✓ By combining the good points of both systems many a mixed system was also developed.

C. Mixed System

- ✓ Ownership of resources partly by private and public sector
- ✓ Every country accepts one or the other method as per their requirement.

FEATURES OF MARKET MECHANISM

Market Mechanism is one of the oldest forms of allocation of resources which existed in countries like USA. Its main features were:

- ✓ There was **private ownership** of resources of production.
- ✓ **Profit** was the main motive of all economic activities.
- ✓ **Distribution** of resources was based on profit.
- ✓ Consumers got the benefit of **choice.**
- ✓ **Government interference** was not there in this system.
- ✓ The **price mechanism** affected all economic decisions.

BENEFITS OF MARKET MECHANISM

Market Mechanism is one of the oldest forms of allocation of resources which existed in countries like USA. Its main advantages were:

- ✓ Economic **freedom** of individual was protected.
- ✓ Resources of production were utilised **efficiently** so there was no wastage.
- ✓ There was an **increase** in the production of goods and services.
- ✓ **Constant research in science and technology** led to faster economic development.
- ✓ Due to constant competition **quality** was maintained.

LIMITATIONS OF MARKET MECHANISM

The Market Mechanism was not a perfect system of allocating resources. It had many limitations like:

- ✓ As profit was the main aim, luxurious items were manufactured more and production of goods needed by the poor was neglected.
- ✓ As **government didn't interfere** in its working many natural resources were wasted.
- ✓ **Consumers were exploited** as they lacked knowledge and were unaware about the market.
- ✓ The resources were in the hands of the rich so the gap between rich and poor increased.
- ✓ There was a fear of **monopoly, economic instability and exploitation** of labour.

FEATURES OF SOCIALIST SYSTEM

The Socialist System was a method of allocating resources. Its features were:

- ✓ All resources were owned by the State (Government).
- ✓ All the economic decisions were taken by the state.
- ✓ The main aim was not profit but social welfare.
- ✓ All people worked as labourers and were paid wages.

BENEFITS OF SOCIALIST SYSTEM

- ✓ The production was done according to the requirement of the society, unimportant and luxurious items were not produced.
- ✓ The decisions related to production were taken by the state so hardly any wastage of resources was there.
- ✓ Disparity of income and property was removed.
- ✓ Consumers were not exploited.

LIMITATIONS OF SOCIALIST SYSTEM

The Socialist System came into existence with the aim of welfare of the people. However, it had some limitations:

- ✓ As the resources of production were owned by the State, people did not get encouragement and motivation to increase production.
- ✓ Due to lack of competition, research was not done.
- ✓ There was lack of individual freedom in this system.
- ✓ Due to total interference of the state, there was fear of bureaucracy.

FEATURES OF MIXED ECONOMY

Mixed economic systems came in to remove the limitations of the Market Mechanism and Socialist Systems and including good elements of both the systems. Its main features are:

- ✓ In this system the resources are owned by both the private and public sector. They don't work as competitors but complimentary to each other.
- ✓ There is private ownership in agriculture, trade, small consumer goods industry.
- ✓ Basic key areas like heavy industries, factories, producing defence material, railway, electricity, roads, irrigation etc. are owned by the State.
- ✓ The state keeps a check on the private sector through different types of taxes so the system is also called controlled economy.
- ✓ The state also encourages industries to be set up in backward areas by giving them benefits like subsidy and relaxation in taxes.
- ✓ It exists in countries like France, India, and England.

BENEFITS OF MIXED ECONOMY

Mixed economic systems came in to remove the limitations of the Market Mechanism and Socialist Systems and including good elements of both the systems. Its main benefits are:

- ✓ There is a happy blend of the motives of profit and welfare due to the existence of the private and the public sector.
- ✓ The government keeps control over production of undesired goods like cigarettes and gutkha by charging heavy taxes.
- ✓ The auxiliary services provided by the government can help the private sector and the tax collected from the private sector can help to boost growth and development in the country.
- ✓ Some areas like health, transport, communication can be looked after by both the private and public sector.

LIMITATIONS OF MIXED ECONOMY

Mixed economic system has been introduced with the good elements of both the Market Mechanism and Socialist System. However, it also has some limitations:

- ✓ There is economic instability.
- ✓ There is lack of co-ordination between the sectors.
- ✓ The economic policies are inconsistent and not pro development so there is low growth rate of economic development.
- ✓ Timely economic decisions are not taken.

PRACTICE SHEET

1. Economic development means _____.
(A) Constant increase in national income of a country
(B) Increase in per capita income of a country
(C) Improvement in the life style/living standard of the people
(D) All the above

2. Economic progress is_____.
(A) Quantitative increase (B) First stage
(C) Main aim of developed countries (D) Qualitative increase

3. Economic development _____means.
(A) Quantitative increase (B) First stage
(C) Main aim of developedcountries (D) Second stage

4. National Income (GDP) of India in 2011-12 was Rs. _____ crores.
(A) 86,63,903 (B) 87,56,309 (C) 85,73,390 (D) 87,36,039

5. National Income (GDP) of India in 2015-16, increased to Rs. _____.
(A) 1,36,65,390 (B) 1,39,76,291 (C) 1,35,67,192 (D) 1,35,56,191

6. When total national income of a country is divided by total population the average income obtained means _____.
(A) Annual income (B) Average income
(C) Per capita income (D) Daily income

7. The world is divided into _____ groups economically.
(A) One (B) Two (C) Three (D) Four

8. Economic development of a country is related with the _____of people of that country.
(A) Per capita income (B) Living standard
(C) Annual income (D) Both A and B

9. As per World Development Report of 2004 of World Bank, countries having income less than $ _____ are categorized as developing countries.
(A) 753 (B) 735 (C) 730 (D) 750

10. Population grows at an alarming rate of _____ in developing countries.
(A) 2% (B) 1.5% (C) 1% (D) 2.5%

11. Which of the following is an incorrect feature of a developing economy?
(A) Dual economy (B) Proper infrastructure facilities
(C) Unequal distribution of income (D) Poverty

12. 20% of the rich people share _____ % of the National Income.
(A) 40 (B) 30 (C) 10 (D) 20

13. The contribution of agriculture in National Income of the developing countries is _____.
(A) 50% (B) 60% (C) 30% (D) 26%

14. About 40% of the National Income is shared by _____ of the rich.
(A) 20% (B) 30% (C) 40% (D) 10%

15. About 20% of the poor share of the National Income.
(A) 20% (B) 30% (C) 40% (D) 10%

16. 10% of the national income is shared by _____ of the poor people.
(A) 40% (B) 50 % (C) 90% (D) 20%

ANSWERSHEET										
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**
D	**A**	**B**	**D**	**C**	**C**	**B**	**D**	**B**	**A**	**B**
12.	**13.**	**14.**	**15.**	**16.**						
A	B	A	D	D						

2 – ECONOMIC LIBERALIZATION & GLOBALIZATION

NEW ECONOMIC POLICY

- ✓ Five Year plans were implemented by the Government for speedy economic development after independence in 1947.
- ✓ Monetary policy, Fiscal policy and Industrial policy were announced, however there was limited success.
- ✓ To rectify the mistakes and increase economic development, the government introduced the New Economic Policy in 1991, which included features like Liberalization, Privatization and Globalization.

LIBERALIZATION

- ✓ Under Liberalization the government gradually reduced the restrictions and a control imposed on private sector and encourages economic development.
- ✓ The industries which required government permission were restricted to 18.
- ✓ All other industries except railways, atomic energy and defence were opened for private sector.
- ✓ Compulsory registration for industries was cancelled.
- ✓ Non-polluting industries didn't have to take government permission for setting up their units.

ADVANTAGES

- ✓ The private sector got an opportunity to develop, so the production increased.
- ✓ There was an increase in global trade and foreign exchange reserve.
- ✓ Internal infrastructural facilities increased.

DISADVANTAGES

- ✓ Monopoly could not be checked.
- ✓ Agricultural sector didn't develop.
- ✓ There was an increase in disparity of income.
- ✓ The country's foreign debt increased due to increase in imports and decrease in exports.

PRIVATIZATION

Privatization means transfer of ownership and management of industrial units, under state control to the private sector.

METHODS

- ✓ The areas allotted to the public sector were opened for the private sector.
- ✓ It was done by allowing state owned companies to be managed by private sector or state units were allowed private ownership but were managed by the state.

ADVANTAGES

- ✓ Production in industrial sector increased.
- ✓ Production in capital intensive and consumable commodities increased.
- ✓ Working capacity of public sector improved due to ownership of private sector.

DISADVANTAGES

- ✓ Economic power centralised, leading to monopoly.
- ✓ Only large industries benefited and not cottage industries.
- ✓ Prices rose as they couldn't be controlled.

GLOBALIZATION

Globalization is the process of connecting one country's economy with the world economy.
It includes:

- ✓ Removal of obstacles of trade between nations.
- ✓ Capital can be easily exchanged between nations.
- ✓ Exchange of technology has been made easy.
- ✓ Free exchange of labour among different nations of the world.
- ✓ As a result of globalisation flow of goods, services, technology and labour had become easy in the world.

ADVANTAGES

- ✓ Foreign Direct Investment (FDI) is encouraged.
- ✓ Goods not produced in a country are made available.
- ✓ Developing countries have been able to withstand international competition.

DISADVANTAGES

- ✓ Problems of poverty and unemployment have not been solved.
- ✓ Exports of developing countries have not increased as required.
- ✓ Large scale industries have benefitted and not the small scale ones.

WORLD TRADE ORGANISATION (WTO)

World Trade Organisation was established on 1st January, 1995 by the member Nations of United Nations. Its headquarter is located in Geneva in Switzerland.

Objectives

- ✓ To remove obstacles influencing global trading.
- ✓ To remove protection policy given to industries of country for foreign trade.
- ✓ To co-ordinate with global trade policy and economic policy.
- ✓ To solve the trade related disputes arising in the world.

Functions

- ✓ To set up a required structure for implementation of agreement related to multinational trade and agreement related to it.
- ✓ World trade organization plays a vital role for debate and negotiations for multinational trade.
- ✓ WTO encourages unbiased international trade.
- ✓ Different nations follow their own national policy. It observes them and suggests required improvements.

Impact of WTO on the Indian Economy

India is a member of this WTO organisation since its inception. The impacts of WTO on the Indian economy are:
India's contribution in world trade has risen from 0.5% to 1%.
Export of readymade garments has increased.
Export of agro-products has increased.
Increase in exports has increased foreign exchange and investment.

However, India has to comply with some conditions laid down by the WTO like increasing infrastructural facilities. Also how the developed countries will co-operate with India.

SUSTAINABLE DEVELOPMENT

- ✓ Sustainable development means meeting the needs of present generation without compromising with the ability of future generations to meet their own needs.
- ✓ Rapid economic growth and industrialisation have led to exploitation and imbalance of natural resources and pollution.
- ✓ The way resources are presently being used there is a fear that they may not be present for the future generation.
- ✓ Sustainable development is the only remedy for development without negatively affecting the environment.

A. Strategy to be adopted for conservation and preservation of natural resources:

- ✓ Non - renewable resources like coal, mineral oil and minerals should be used judiciously.
- ✓ Renewable resources like water, forest, farms should be used in such a way that their quality is maintained.
- ✓ Industries should be located close to their source of raw material and market to save transportation cost.
- ✓ Eco-friendly technology should be used for transport vehicles and in industries.
- ✓ The alternative uses of multi-purpose resources should be explored. For e.g. River water should be used for irrigation, transport and domestic use.
- ✓ Natural resources should not be polluted for e.g. Control should be laid on unplanned disposal of industrial waste, poisonous chemicals and increasing slums.
- ✓ Stress should be laid on use of non - conventional energy resources such as solar and wind energy.

B. Steps taken to protect environment

- ✓ In order to ensure environment protection an 'Earth Conference' was organised in 1972 at Stockholm in Sweden.
- ✓ Thereafter from time to time conventions and camps have been organised for protection of the environment at the global level and steps have been taken for environment protection. -India is also involved in these global efforts.
- ✓ The Government is also making different efforts at the national level like:
  - Information about pollution levels in different cities should be given.
  - Central and state pollution control boards have been established.
  - 5th June is celebrated as 'Environment day'.
  - The government passed the 'Air Pollution Control Act' in 1981.
  - International agreements have been signed for halting the depletion of the ozone layer, disposal of nuclear waste and maintenance of bio-diversity.

PRACTICE SHEET

1. Which of the following is not a part of the New Industrial policy of 1991?
(A) Privatization (B) Liberalization (C) Globalization (D) Nationalization

2. When did economic reforms begin in India?
(A) 1981 (B) 1951 (C) 1920 (D) 1991

3. For how many industries was there reservation in India?
(A) 18 (B) 14 (C) 16 (D) 12

4. Except, all other were opened for private sector by the government.
(A) Railways, Defence, Roadways (B) Railways, Atomic Energy, Defence
(C) Education, Railways, Port service (D) Education, Railway, Defence

5. Which one of the following is incorrect about Economic Liberalization?
(A) State kept ownership of most industries.
(B) There was reservation for 18 industries.
(C) Tradition of compulsory registration of industries was carried on.
(D) Non-polluting industries didn't need government's permission for setting up.

6. Which of the following is incorrect about Economic Liberalization?
(A) Polluting units needn't take permission from government for setting up.
(B) State kept ownership of only 3 industries.
(C) There was reservation for 18 Industries.
(D) Tradition of compulsory registration of industries was cancelled.

7. Which type of economic policy is the policy of 'Liberalization'?
(A) Controls reduced (B) Controls increased
(C) More monopoly (D) Transfer of Ownership

8. Check the dialogue and determine which topic they are talking about?
Mahima: Government kept reservation in 18 industries.
Aruna: Non-polluting industries didn't need permission for setting up.
Anita: Government controls were reduced.
Binita: Government barred private sector only from 3 industries.
(A) Globalization (B) Liberalization
(C) Privatization (D) Sustainable Development

9. Which change in the Economic Policy encouraged the reduction in government controls?
(A) Privatization (B) Industrialization
(C) Liberalization (D) Globalization

10. Which of the following is correct about Liberalization?
a. There was reservation for 16 industries.
b. Railway was opened for the private sector.
c. Compulsory registration for industries was cancelled.
d. Non-polluting industries needed no registration.
(A) c and d (B) only c (C) a and b (D) a and d

11. What is the advantage of the economic policy of Liberalization?
(A) Government debt has decreased. (B) Inequality of income decreased.
(C) Progress in industrial production. (D) Price rise has been controlled.

12. What is the disadvantage of economic policy of Liberalization?
(A) Foreign exchange stability has decreased.
(B) Inequality has increased.
(C) Industrial production has decreased.
(D) Government work has increased.

13. Which one of the following is not an advantage of Liberalization?
(A) Private sector got an opportunity for development
(B) Increase in global trade.
(C) Decrease in reserve of foreign exchange.
(D) Internal infrastructural facilities increased due to liberalization.

14. _____ means transfer of ownership of an industrial unit from public to the private sector.
(A) Globalization (B) Nationalization (C) Privatization (D) Liberalization

15. The list of industries reserved for public sector has gradually been reduced to encourage _____.
(A) Globalization (B) Nationalization (C) Privatization (D) Liberalization

16. Which one is not an advantage of Privatization?
(A) Industrial units increased.
(B) Production of capital and consumable commodities increased.
(C) Working capacity of public sector improved.
(D) Cottage industries developed.

17. Which one is an incorrect disadvantage of Privatization?
(A) Evil of monopoly increased. (B) Cottage industry did not develop.
(C) Large industries did not benefit. (D) Prices have not remained under control.

18. The policy of Globalization is associated with _____ trade.
(A) Local (B) Foreign (C) Regional (D) Internal

19. Which improvement has not taken place due to the policy of Globalization?
(A) Obstacles of trade between two countries have decreased.
(B) Capital exchange has taken place between two countries.
(C) Obstacles in the way of exchange of technology have been removed.
(D) Free exchange of labour is on a limited scale.

20. Which one is not an advantage of Globalization?
(A) Foreign Direct Investment is encouraged.
(B) Goods produced in foreign countries can be easily developed.
(C) Imports increased.
(D) India could withstand international competition.

21. Which one is an incorrect disadvantage of Globalization?
(A) No solution for poverty.
(B) Developing countries have no benefits in export.
(C) Small scale industries have benefitted less.
(D) Unemployment has decreased a lot.

22. Which one is an incorrect objective of Globalization?

(A) To remove obstacles influencing global trading.
(B) To encourage protection policy given to industries, of country for foreign trade.
(C) To co-ordinate with global trade policy and economic policy.
(D) To solve the trade related disputes arising in the world.

23. Being a member of WTO, _____of readymade clothes has increased.

(A) Export (B) Import
(C) Both A and B (D) None of the above

24. As a member of WTO, India has been able to increase export of _____.

(A) Industrial products (B) Agro products
(C) Both A and B (D) None of the above

ANSWERSHEET									
1.	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**
D	D	A	B	C	A	A	B	C	C
11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
C	B	C	C	C	D	C	B	B	C
21.	**22.**	**23.**	**24.**						
B	A	A	B						

3 – CONSUMER RIGHTS

CONSUMER

Any person who buys anything in the market or pays for any service is a consumer.

CONSUMER EXPLOITAION

When a consumer is cheated in any way, either by the shopkeeper or the producer, by giving him poor quality or adulterated goods or by charging more price for a commodity or a service. It is called consumer's exploitation.

- **Consumers are cheated by the manufacture by the following ways:**

1. **High Prices:** Traders can charge a price higher than the price prevailing in the market because of the ignorance and urgency of the customer.
2. **Underweight and under measurement:** By their cleverness, some traders scoop so low that they cheat the consumer by resorting to underweight and under measurement tactics.
3. **Sub standard quality:** Some traders sell substandard quality products to the consumer. Nowadays markets are full of duplicate products.
4. **Adulterated and impure products:** In edible items such as oil, ghee and spices adulterated is made in order to earn higher profits.
5. **Improper information:** Companies spend a considerable amount on advertisement alone to attract consumers and feed information that they want the consumers to know but not the information the consumers need about the products.
6. **Lack of safety devices:** Some producers try to produce things of poor quality without caring for the standard safeguard norms.
7. **Poor after sale service:** Many things need adequate after sale service. But most of the sellers do not provide it.

MAJOR FACTORS RESPONSIBLE FOR THE EXPLOITATION OF THE CONSUMER

1. Limited information: In the absence of information about different aspects of the products namely price, quality, composition, condition of use etc., the consumers are liable to make a wrong choice and loss money.
2. Wrong information: In the absence of full and correct information a consumer may get exploited.
3. Shortage of supply: Due to under development of industry there is a shortage of supply. This gives rise to hoarding and price rise.
4. Limited competition: Due to under development of industry there is a lack of competition in the market. This may lead to exploitation of the consumers.
5. Illiteracy and ignorance of the consumers: In most of the developing and under developed economies illiteracy rate is very higher consumers can be easily cheated by the producer.

NEED FOR RULES AND REGULATIONS TO SAVE THE CONSUMERS

1. Producers are spending a lot of money to influence the consumers which makes difficult for the consumers to make a correct choice so there is need for consumer awareness.
2. Producers do not provide sufficient information to the consumers and even some times harass them.
3. Consumer awareness is also must because at times greedy traders begin to play with, the health of the people by indulging in adulteration of edible oils, milk, butter etc.
4. There is need for rules and regulations because most of goods and services are being produced by private sector with profits as main motive.

CONSUMER MOVEMENTS

The consumer movement arose out of dissatisfaction of the consumer as money unfair practices were being indulged in by the sellers. Before 80's there was no legal system available to consumers to protect them from exploitation in the market place for a long time.

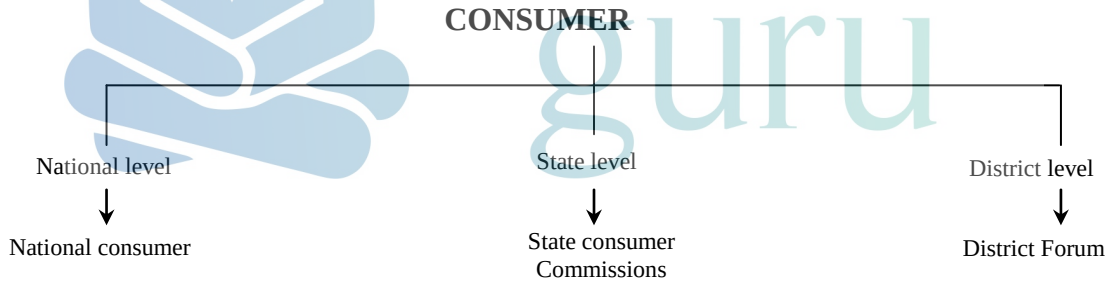
In India, the consumer movement as a "social force" originated with the necessity of protecting and promoting the interest of consumer against unfair trade practices. Food shortage, hoarding, black marketing high prices gave birth to consumer movement in an organized form in the 1960s. More recently, India witnessed an upsurge in the number of consumer groups. This is because more & more cases of the consumer exploitation by the private sector. The activities of various consumer forms forced the government to enact the consumer Protection Act 1986, popularly known as COPRA.

- **Main features of the Act.**

1. The act, applies to all goods and services.
2. It covers all the sectors whether public, private or Co-operative.

RIGHTS OF THE CONSUMERS

- **Right to safety:** The consumers have right to be protected against marketing of goods and services which are hazardous to life and property.
- **Right to be informed:** The consumers have the right to know about the quality, quantity and price of goods, date of manufacture, expiry dates etc. This right has been provided to the consumer so that consumer can approach the courts if cheated.
- **Right to choose:** Consumers have the right to check the variety of goods and services at competitive prices. This right gives the consumer assurity that no producer can force him/her to purchase a particular brand.
- **Right to seek redressal:** The consumer has the right to seek redressal against unfair trade practices and exploitation. If any damage has been done to the consumer. He/she has the right to get compensation depending upon degree of damage.



Consumer Courts: Most important feature of the consumer protection Act is the provision of three tier system popularly known as consumer courts.

1. These courts look into the grievances and complaints of the consumers against the traders and manufactures and provide the necessary relief and compensation.
2. These courts are required to dispose off each complaint within three months.
3. These courts reduce burden on other courts.

STANDARDISATION

For maintaining the minimum standard government has created various institutions:

1. Through standardization of product the government tries to protect the consumers from lack of quality and varying standards of goods.

2. Government of India has established two agencies to check the quality and standard of the products.
   (a) Bureau of Indian standards: It has the responsibility of laying down the standards for industrial and consumer goods on a scientific basis and certifying the goods that meet the standard quality.
   (b) Agmark: It is implemented under the Agricultural Produce Act, 1937, as amended in 1986. This scheme is run by DMI in the ministry of Agriculture Government of India. Products such as honey, Masala and spices carry such marks.
3. If any consumer is dissatisfied with the quality of a certified product, he/she can complain to the nearest office of the BIS.

DUTIES OF A WELL INFORMED CONSUMER

1. While purchasing the goods, consumer should look at the quality of the product, the marked price, guarantee or warrantee card/period.
2. Consumer should preferably purchase standardized products which contain seal of ISI or Agrmark.
3. Consumer should ask for a cash-memo and warrantee card.
4. Consumer must be aware of his rights and duties.
5. Consumer should form consumer awareness organization, which can be given representation in various committees formed by the government.
6. He should know the method how to proceed if he is cheated.

IMPORTANT TERMS

1. **Adulteration:** It is a process by which the quality of food substance is lowered through the addition of other inferior substances to make higher profits:
2. **Consumer Awareness:** Consumer's consciousness towards their right and social and legal obligation of the business and the government towards consumers is known as consumer awareness.
3. **Consumer Exploitation:** It is a situation in which consumer is cheated by the producer.
4. **Consumer courts:** These are courts which have been established under the consumer protection Act, 1986 at different levels for the protection and promotion of consumer interest.
5. **Consumer:** Any person who buys anything in the market and uses it.
6. **Consumer protection Act, 1986:** It is one of the most important legal measures in protecting the rights of the consumer.
7. **Agmark:** It is meant for the agricultural marking for agricultural product.

PRACTICE SHEET

1. A consumer_____
(A) Sells goods and services
(B) Buy goods and services
(C) Produces goods and services
(D) Delivers goods and services

2. Adulteration is_____
(A) Selling defective items
(B) Overpricing
(C) Underweight measurement
(D) Mixing cheap materials

3. Causes of consumer exploitation is?
(A) Right to Information
(B) Proper Supply
(C) Low literacy
(D) High literacy

4. Which is not a function of PDS
(A) Control Hoarding
(B) Control Prices
(C) Control over charging
(D) Consumer Redressal

5. COPRA stands for_____
(A) Consumer Protection Act
(B) Consumer Prevention Act
(C) Consumer Police Act
(D) Consumer Power Act

6. Pick odd one out
(A) Right to information
(B) Right to choice
(C) Right to adulteration
(D) Right to redressal

7. National Consumer Day is celebrated in India
(A) 24 December (B) 25 December (C) 26 December (D) 27 December

8. COPRA does not propose formation of_____
(A) National Consumer Court
(B) State Consumer Court
(C) District Consumer Court
(D) High Court

9. ISO stands for_____
(A) International Standard Organization
(B) International Organization for Standardization
(C) International School Organization
(D) International Standardization

10. In which year Right to information act was passed
(A) 2008 (B) 2009 (C) 2005 (D) 2010

11. World Consumer Rights Day is celebrated on
(A) 5 March (B) 10 March (C) 15 March (D) 20 March

12. Consumer Complaint forum is called
(A) Consumer forum
(B) RTI
(C) High court
(D) Police Station

13. _____ started a movement in America to bring consumer awareness, thus he is called pioneer of consumer movement
(A) Ralph Nadar (B) Adam Smith (C) Martin Luther King (D) J M Keynes

14. Ancient book also _____ describes misbehavior of trader towards consumer and his exploitation.

(A) Arthshastra (B) Ashtadhayi (C) Rajnitik Vigyan (D) The Prince

15. American President _____ presented four rights of the consumer in the Parliament of America.

(A) Woodrow Wilson (B) John F Kennedy
(C) Richard Nixon (D) Ronald Reagan

16. District Forum deals with cases ranging from_____

(A) 20 Lakh to 1 Crore (B) Upto 20 Lakh
(C) Above 1 Crore (D) None of These

17. State Forum deals with cases raging from _____

(A) 20 Lakh to 1 Crore (B) Upto 20 Lakh
(C) Above 1 Crore (D) None of These

18. Which is the voluntary organization regulating the quality of edible items

(A) BIS (B) CAC (C) ISO (D) FPO

19. Which periodical is published for consumer education and awareness forum

(A) Insight (B) Consumer awareness forum
(C) Consumer education (D) Consumer Act

20. Due to prediction that prices are going to rise in future what do the people do

(A) Black marketing (B) Profiteering (C) Betting (D) Hoarding

21. Government of India established ISI in _____ to regulate quality

(A) 1951 (B) 1961 (C) 1947 (D) 1949

22. ISI since 1986, is known as _____

(A) Bureau of Indian Standard (B) Bureau of International Standard
(C) Bureau of India System (D) Bureau of International system

23. The agriculture products like forest products, horticulture and animal product are given the mark of _____

(A) ISI (B) Hallmark (C) Agmark (D) BIS

24. Is the mark of _____

(A) FPO (B) Woolmark (C) M P O (D) HACCP

25. Is the logo used for

(A) Woolen products and dress
(B) Meat, mutton and products made from them
(C) Jam, Fruit, Squash, fruits or vegetables
(D) Gold ornaments

26. The Headquarter of International Standardization Organization
(A) Paris (B) Geneva (C) Washington D C (D) Rome

27. Codex Allimelatrius Commission was established in the year _____
(A) 1969 (B) 1963 (C) 1971 (D) 1976

28. Codex Allimelatrius Commission's Headquarter is located at _____
(A) Tokyo (B) Rome (C) Paris (D) Berlin

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
B	D	C	D	A	C	A	D	B	C
11.	**12.**	**13.**	**14.**	**15.**	**16.**	**17.**	**18.**	**19.**	**20.**
C	A	A	A	B	B	A	D	A	D
21.	**22.**	**23.**	**24.**	**25.**	**26.**	**27.**	**28.**		
C	A	C	B	C	B	B	B		

4 – HUMAN DEVELOPMENT

HUMAN DEVELOPMENT

– Change is the rule of life. An infant slowly and steadily grows into an adult.
– From the stage of being a primitive man, modern man has developed into a complex social being.
– Human society has also developed by imbibing many changes.
– Economics doesn't study just production, consumption, income, expenditure and profit-loss but also studies human development since the last 60-70 years.
– A lot of difference is seen in the quality of life of people in different countries of the world and difference is also seen between two regions of the same country.
– In order to improve quality of life, there is a need to satisfy basic requirements like food, clothing and shelter.
– Then the needs of education, health and entertainment also arise. Hence there is need to study about Human Development Index of India.

MEANING OF HUMAN DEVELOPMENT

– Human development is a process of creating opportunities for fulfilling human aspirations and providing basic necessities of life- UNDP.
– Earlier only per capita income was considered as the measure for human development but now quality of life has been given more importance.
– There are four important pillars of human development - equality, stability, production and empowerment.

HUMAN DEVELOPMENT INDEX IS AFFECTED BY

Ability of every person to lead a successful and creative life as per their own interest, taste, skill and intelligence.
– Securing equality and getting an opportunity to choose a proper field of work and increase one's capabilities in it.
– Living a healthy and long life.
– Acquiring knowledge through information and education.
– Getting opportunity of monetary benefit.
– Availability of natural resources to improve one's standard of living.
– Being able to live a qualitative life style.
– Removal of dirt and filth and improvement of health related conditions.
– Obtaining personal and social security.
– Utilizing Human right.
– Obtaining individual and social security.
– Human Rights are inherent to all human beings so use it.

Developing countries have not been able to achieve economic and social development due to challenges like illiteracy, social backwardness, unemployment, poverty and improper use of resources.

HUMAN DEVELOPMENT INDEX (HDI)

The concept of Human Development Index was promoted by the Indian economist Amartya Sen
– A Nobel Prize winner.
  The first Human Development Report was published in 1990 under United Nations Development Programme (UNDP).
– A report is published every year with a worldwide analysis of development of different nations in various dimensions.

The HDI is the cumulative measurement of:
(a) Average age (Life expectancy)
(b) Knowledge
(c) Living standard (per capita income).
Human Development Index (HDI) is calculated between 0 and 1.
The new techniques used to determine Human Development Index (HDI) being used since 2010.

(a) Life Expectancy Index (LEI) (Average Age):

– This index determines the longevity at the time of birth (prediction as to how many years an infant survive).
– The highest index is set at 83.6 years and the lowest at 20 years.
– The life expectancy in India in 2015 was 68 years.

(b) Education Index (EI):

– This index is calculated on the basis of:

(i) Mean Years of Schooling (MYS):

– It is the number of years spent in the school by a child till the age of 25.
– Of this the highest is 13.3 years and lowest is zero years.
– The average years of schooling in India in 2015 were 5.4 years.

(ii) Expected Years of Schooling (EYS):

– It is the approximate years that a child of 5 years will spend in school.
– Of this the highest is 18 years and lowest is zero years.
– The average years of schooling index were 11.7 years.

(c) Income Index (II) (Life style):

– For determining this index the Per Capita Gross Domestic Product and Per Capita National Income is taken into consideration.
– The Per Capita National Income of India, in 2015 was $5497 while the Per Capita Gross Domestic Product was $5238.
– The Per Capita income of any nation is calculated on the basis of USA $ as it is the most accepted currency and this is known as Purchasing Power Parity (PPP).

HUMAN DEVELOPMENT REPORT

– Since 1990, the Human Development Report (HDR) is published every year by United Nations Development Programme.
– 1 Human Development Index of 188 countries is shown in the Human Development Report-2015,
– The report divides 188 countries into four sections as:
  a. Highest human development.
  b. High human development.
  c. Medium human development.
  d. Low human development.
– Norway (0.944) tops the list.
– Australia (0.935) is placed on 2nd position and Switzerland (0.930) on 3rd position.
– Singapore (0.912) is on 11th position.
– India with HDI 0.609 is at 130th position among 188 countries in the medium human development 1category countries.
– Niger is at the bottom at 188th position with 0.348 HDI.

CLASSIFICATION OF COUNTRIES ON THE BASIS OF HUMAN DEVELOPMENT INDEX

(a) Highest Human Development

Division order - 1 to 49 (49 countries)
Human Development Index - above 0.802
Some Countries - (NASDBJF) Norway, Australia, Switzerland, Denmark, Netherlands, America, Singapore, Britain, Japan, France

(b) High Human Development

Division order - 50 to 105 (55 countries)
Human Development Index - 0.700 to 0.798
Some Countries - (CRIMTSBJ) China, Russia, Iran, Malaysia, Thailand, Sri Lanka, Brazil and Jamaica

(c) Medium Human Development

Division order - 106 to 143 (37 countries)
Human Development Index - 0.555 to 0.698
Some Countries - (SIP) South Africa, Indonesia, Iraq, India and Philippines

(d) Low Human Development

Division order - 144 to 188 (44 countries)
Human Development Index - below 0.550
Countries - (KPNZ) Kenya, Pakistan, Nigeria, Niger and Zimbabwe

HUMAN DEVELOPMENT INDEX OF INDIA AND NEIGHBOURING COUNTRIES

(a) Human development Index of India:

0.428 in the year 1990 0.496 in the year 2000
0.586 in the year 2010 0.604 in the year 2014
609 in the year 2015. Thus India has steadily progressed.

(b) i. Position of India and neighbouring countries as per HDR - 2015

Order	73	90	104	130	132
Country	Sri Lanka	China	Maldives	India	Bhutan
HDI	0.759	0.727	0.706	0.609	0.605

ii. Position of India and neighbouring countries as per HDR - 2015

Order	142	145	147	148	171
Country	Bangladesh	Nepal	Pakistan	Myanmar	Afghanistan
HDI	0.570	0.548	0.538	0.536	0.465

Among the neighbouring countries of India, the HDI ranking of Sri Lanka, China and Maldives is much better than India.

CHALLENGES OF HUMAN DEVELOPMENTS

When we compare India's Human Development Index with the top five countries, we realise that a lot of work needs to be done to achieve that rate of human development.

a. Health b. Sex Ratio c. Women Empowerment

(a) Health:

– Health is an important and valuable asset.
– It is essential to make one's family and social life great.
– In developing countries like India more attention is focused on population growth, common diseases, contagious diseases like AIDS, malnutrition, handicaps and mental disorders.
– Funds spent on health are not just expenditure for improving quality of life but also an investment into human resource development.
– India has made lot of progress in the field of health.
– Infant Mortality Rate has been reduced through vaccination programmes
  (i) OPV - for polio
  (ii) BCG vaccine - for tuberculosis
  (iii) Hepatitis-B - to improve immune system against AIDS and HIV
  (iv) DPT - for diphtheria, whooping cough and tetanus
  (v) MMR - for measles and mumps
  (vi) Typhoid vaccine
– Campaign has been started against deficiency of iodine, vitamins and iron.
– Diseases like plague, small pox, leprosy have been eradicated.

– Diseases like chicken pox, cancer, dengue, diabetes, hepatitis, heart disease, leprosy, measles, malaria, tuberculosis have been controlled substantially.
– There has been a decline in birth rate, mortality rate and infant mortality rate.
– Life expectancy rate is increased.
– However water borne diseases and malnutrition have raised problems for the people.
– Many ladies, children and poor people do not get nutritious food so their body development suffers.
– Increased urbanization, overcrowded residential areas, environment pollution and poisonous gases pose as a threat to health of people.
– The new challenges can be faced by having a proper health agenda to overcome them.

(b) Sex Ratio:

– The Indian Constitution guarantees equality and justice to all the citizens.
– According to 2011 census there are 48.46% females and 51.54% males in India.
– Women are an important human resource but due to biological differences, different upbringing, socio and cultural differences, women have not developed as men.
– Even today many women are just involved in household chores, cooking or bringing up children.
– They experience discrimination in family life, games, education, food and clothing.
– They become victims of child marriage, purdah system, dowry system and many other social evils.
– Girls become victims of female infanticide, are forced to have sons, are harassed and have little respect in society.
– They suffer from inadequate health care, low literacy and are deprived of economic and educational rights.
– They have no decision making power in the family and no earnings of their own.

Statistical Analysis of Sex Ratio in India as per HDR 2015

	Female	Male
HDI:	0.525	0.661
Expected life expectancy at birth 68 years:	69.5	66.6
Expected schooling years 11.7 years:	11.3	11.8
Average schooling years 5.4 years:	3.6	7.2
Per capita income $5497:	2,116	8,656
Participation in labour force (more than 15 yrs. age):	27.0	79.9
Proportion of representation in Parliament (2014):	12.2	77.8
Youth literacy rate (15-24 years):	74.4	88.4

In almost all jobs there is male dominance at higher post, men get better income at the same posts.

– There are hardly 12.2% female Members of Parliament.
– There is less number of women in the Legislative Assemblies also.
– There are few women working at managerial post, directors of companies and in commercial and technical fields.

(c) Women Empowerment

– Women empowerment is important for the economic development of the nation.
– Women are the centre of whole development process.
– Economic freedom is essential for women empowerment.
– In any country economic empowerment of women is important.
– If a woman is educated she would educate a household, a society and ultimately the entire nation.
– Our country has started taking steps in this direction.
– Women have served as Prime Minster, President and as Chief Minister of different states. – They are also engaged in jobs like taxi driver or pilot.

– Women are active in the field of social service, literature, journalism, sports, education and mass media like television and cinema.
– Women employment have expanded from just being labourer to owning business and having managerial posts due to increase in education, training and skill programmes.
– Still there is a lot of scope for development.

WOMEN WELFARE SCHEMES

– The United Nations declared 1975 as 'Women's Year'.
– It also declared the 1975-1985 decade as 'Women's Decade'.
– In India since 1980, many plans and programmes have been implemented for women's development.
– The National Commission for Women was set up in 1992.
– The National Policy for Empowerment of Women was implemented in 2001.
– The year 2002 was celebrated as 'Women Empowerment year' in India.
– A Department for Women and Child Development has been set up.
– The Property Act has been amended to give women equal right in family property.
– The government has undertaken programmes like health, employment, income generation, welfare and security for women.

STEPS TAKEN TO CURB WOMEN EXPLOITATION

– For women security, 181 Abhayam Women Helpline has been started in Gujarat to help women suffering from various types of violence just by making a phone call.
– Women courts have been set up to get easy justice for poor women.
– Women welfare centres have been set up to solve social, legal and employment related problems of women.
– The government has become vigilant to provide protection to women against physical, mental and sexual exploitation.
– By passing a law in the Parliament, working women have been given protection against sexual harassment in government office, private, business or as house maids.

SCHEMES OF GUJARAT GOVERNMENT FOR PROVIDING EQUALITY TO WOMEN

– The Gujarat government set up the Women and Child Development Department in 2001 for social, economical and educational progress of women.
– The government has laid stress on women empowerment through:
  a. Educational empowerment b. Women's health c. Women's security

SCHEMES AND PROGRAMMES FOR WOMEN AND GIRLS IN GUJARAT:

The following women's welfare schemes have been started by the Women and Child Development Department of Gujarat.

1. Vidyalaxmi Bonds

These bonds have been given to girls from villages with less than 35% women literacy and from below poverty line families in urban areas.

2. Saraswati Sadhna Yojna

– About one lakh fifty thousand girls have been given cycles free of cost.
– The girls who go to study outside their village are given free travel facility by State Transport (ST) buses.

3. Sabla Yojna

This programme provides nutritional food to adolescent girls and looks after the development of their skills.

4. **Women's Reservation**
   There is 33% reservation for women in local self-government organisations like panchayat and municipalities. This has been increased from 33% to 55%.
5. **Rastriya Swavlamban Yojna**
   This has been implemented to provide pension to the workers and to poor old people including poor widows in the later part of their life.
6. **Mission Mangalam Yojna**
   The government provides economic help to women through Sakhi Mandal to make them self- reliant.
7. **E-Mamta Programme**
   This programme registers pregnant women through mobile technology and gives them 'Mamta card'. This ensures regular health check-ups after birth of the child, health of mother and child is taken care of through vaccination programme. This is done to reduce Mother Mortality Rate.
8. **Beti Bachchao Abhiyan**
   Through this programme the gender discrimination is being checked and steps are taken to increase the number and education of the girl child.
9. **Chiranjivi Yojna**
   This scheme provides pregnant women of Scheduled Caste and Scheduled Tribe with medicines, laboratory tests and operation facility free of cost.
10. **Entrance ceremony and Education Chariot Festival**

These programmes are done to increase the number of girl students and improve women's literacy.

– However, the scenario is bad as many women and children don't get proper nutrition.
– Many children are not able to read or write and many school dropouts.
– Girls don't go for higher education.
– Many young people are not able to get employment.
– There are many deaths due to disease and accidents.
– All these affect the Human Development Index of the country.
– Therefore the people and the government have to work together to improve the index so that we are able to compete with developed countries.

THINGS TO KNOW

On 14 December, 2015 United Nations Development Programme (UNDP) published Human Development Report 2015.

According to this report along with Human Development Index the following indicators are also included.

1. Gender Development Index
2. Child and Youth Health
3. Adult Health and Health Expenditure
4. Education
5. Control over allocation of Resources
6. Social Competencies
7. Personal Insecurity
8. International Integration
9. Environment
10. Population Trends
11. Supplementary Indicators: Perceptions of well-being.

The report is published in English and other languages.

PRACTICE SHEET

1. Since when has the Human Development Report been published by the UNDP?
(A) 1995 (B) 990 (C) 1998 (D) 2005

2. The HDR of 2015 is divided into _____sections.
(A) Two (B) Three (C) Four (D) Five

3. Which country stands first in the Human Development Report ranking of 2015?
(A) Norway (B) Australia (C) Switzerland (D) Singapore

4. Which country stands second in the Human Development Report ranking of 2015?
(A) Norway (B) Australia (C) Switzerland (D) Singapore

5. Which country stands third in the Human Development Report ranking of 2015?
(A) Norway (B) Australia (C) Switzerland (D) Singapore

6. Which country stands eleventh in the Human Development Report ranking of 2015?
(A) India (B) South Africa (C) Indonesia (D) Singapore

7. What was the position of Singapore in the Human Development Report ranking of 2015?
(A) 11^{th} (B) 10^{th} (C) 15^{th} (D) 20^{th}

8. What was the position of India in the Human Development Report ranking of 2015?
(A) 120^{th} (B) 130^{th} (C) 140^{th} (D) 150^{th}

9. What was the position of Sri Lanka in the Human Development Report ranking of 2015?
(A) 73^{rd} (B) 90^{th} (C) 104^{th} (D) 132^{nd}

10. What was the position of China in the Human Development Report ranking of 2015?
(A) 73^{rd} (B) 90^{th} (C) 104^{th} (D) 132^{nd}

ANSWERSHEET

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
B	C	A	B	C	D	A	B	A	B

5 – ECONOMIC PROBLEMS & CHALLENGES: POVERTY & UNEMPLOYMENT

Indian economy experiences many serious and complex economic and social problems such as population growth, price rise, black money, poverty, unemployment, starvation, corruption, terrorism etc.

POVERTY

A large number of people are deprived of satisfying their basic and essential requirements of the life such as food, clothes, shelter, education and health services. Such a situation is known as 'comprehensive poverty' and people living in such a condition in the society are called 'poor'.

People Living Below Poverty Line (BPL): Poverty is a qualitative concept. In India poverty is viewed as lowest level of life. Common features of people living below poverty line are as follows :

- Person who is not able to get two meals a day.
- People suffer from problem of unavailability of dwelling place. They are forced to live in shabby or slum areas.
- Their income is less than determined expected income.
- Their life span is less than National Average life expectancy.
- Generally they are illiterate.
- Very often they suffer from various diseases due to lack of nutritious food.
- Children who have taken up the responsibility of looking after the family at the age, when they are supposed to study. Death rate is high due to malnutrition.
- Efforts made by the government to' improve living standard of people, 'Living Below Poverty Line .
- Income of people living below poverty line is very less in cities as well as in villages. Such families are called ' Antyoday family' or families living below poverty line (BPL).
- After finding out such families, government has started public distribution system on the basis of the ration card.
- These shops are called Fair Price Shops.
- Every month they fulfill the requirements like rice, wheat, sugar, oil, salt and kerosene etc. of such families. It has tried to raise their living standard.
- Concept of poverty was first propounded by director of WHO. for calculating poverty line certain factors are considered which includes expenditure on food, clothing, accommodation, education, health, clean drinking water, electricity, sanitation facilities, transportation facilities and income as well as the intake of calories.
- On the basis of these factors a particular standard of living is fixed which is known as poverty line.

Measurement of Poverty: There are two ways of knowing the number of people living below poverty line:

(1) On the basis of expenditure behind various commodities or services by a family.
(2) On the basis of total income of the family (Family means minimum 5 members).

Absolute Poverty:

- Those people of the society who are not able to purchase the basic necessities of life like food grains, pulses, milk, vegetables at lowest market rate are said to be absolute poor.

Relative poverty:

- A society has different income groups, among them, some groups have low income in comparison to other, such a group is considered to be relative poor.
- Rs. 10,000 B. Rs. 20,000 C. Rs. 30,000 here income of three persons is different. As the income of "A" is less in relation to "B", Person "A" is considered to be poor. In the same way income of "A" and "B" is less in relation to "C". So, they are considered as poor.

Poverty in India:

- In order to decide poverty line, in 2011-12, planning commission of India declared per capita expenditure for rural area as Rs. 816 which means Rs. 4080 per family expenditure and for urban area per capita expenditure was fixed at the rate of Rs. 1000 per person at least, accordingly family expenditure was declared to be at least Rs. 5000.
- According to one report of World Bank India's total population was approximately 121 crore in 2010, out of which 32.7% people were living in below poverty line. Which makes about 45.6 crore.
- As per the report of UNDP-2015, ratio of poverty in India in 2011-12 was 21.92% of the total population. Out of which proportion of poverty at the rural level was 25.7 percent while at the Urban level it was 13.7%.
- It means that out of total poor i.e. 26.93 crores 21.65 crore people in the rural area and only 5.28 crore people in urban area. Chhattisgarh (36.93%) is the poorest state of India. While Goa (5.09%) has lowest poverty rate. In Gujarat the proportion of poverty is 16.63%. Chhattisgarh, Assam, Uttar Pradesh, Manipur, Bihar, Arunachal Pradesh, Jharkhand, Orissa etc. have more than 30% proportion of poverty in India.

(A) **Rural poor**: Generally, landless labours, farm labourers , artisians of cottage industries or small scale industries, marginal farmers, beggars, forced labourers, inhabitants of forests or mountainous region, tribals, temporary craftsman etc. are called rural poor.

(B) **Urban poor:** Temporary labours, labours on daily wages, domestic workers, rikshawalas, workers in tea stalls or hotels, or dhabas, workers working in garages, beggars or who are not able to satisfy their minimum and basic necessities and live in poverty are considered to be urban poor.

REASONS OF POVERTY

- The origin of poverty is more deep rooted in (villages) rural areas as compared to urban areas. Following are the reasons for it :
- Decrease in income from agriculture sector because of insufficient development in the field of agriculture and insufficient irrigation facilities.
- Lack of alternative employment apart from farming.
- Lack of knowledge regarding other employment, education, skill or training in the rural area.
- Increase in debt as a result of excessive expenditure because of caste system and orthodoxy, traditions and customs. Thus, it may be said that it is due to increase in unproductive expenditure.
- Due to illiteracy the poor become victim of exploitation and injustice. Along with that they are not able to get proper benefit of government schemes because of lack of information.
- Due to ignoring necessities and economic welfare of the poorest section of the society during formation of economic policies.
- Production of cash-crops was encouraged while production of edible crops was reduced. This triggered the scarcity of food grains and pulses and price rise because of which people could not get meals twice a day.
- Because of execution of economic reforms, rural economy collapsed, cottage and small scale .
- Industries broke down, migration increased, income in agriculture sector decreased.
- Poor people are becoming victims of malnutrition and diseases. Expenditure on health increased; although income was static but expenditure on medicines increased.
- Due to change in technology, traditional business, cottage industries etc. deteriorated and unemployment increased.
- There was an increase in population growth, death-rate decreased, average life-span increased, supply of labour increased in comparison to demand of labour, so unemployment increased. On the other side the production of things of basic requirement decreased, there was price rise there was. Downfall in purchase power was experienced, living standard deteriorated. Thus, poverty increased.

STRATEGY FOR POVERTY ERADICATION

- Villages are the heart of Indian economy, so in order to keep them alive and prosperous, a large part of budget should have been spent after them.
- Actual economic development, social development and cultural development of India is possible by developing villages only.
- Thus, through the programme 'Gramoday Se Bharat Uday" present government has implemented the basic idea that the upliftment of the country is possible only through the upliftment of villages.
- Central and state Government have emphasized on implementation of new plans and programmes for removal of poverty.

(1) After Independence, government has given a thrust to development of large scale, heavy and key industries along with slogan "Gareebi Hatao" (Remove poverty).
On the other had with the objective of, Green revolution, land reform acts have been implemented, so that development may be there in agriculture sector, as a result of which production will increase, employment opportunities will be created, employment will be increase and poverty level could be reduced.

(2) In order to remove the disparity of income, government framed such type of taxation policy so that the poor may get commodities essential for their life and production of such commodities increases.
For this purpose, heavy tax was levied on the luxurious goods used by rich people, articles and services of luxury or enjoyment. For this, strategy was made to provide essential commodities to the poor people from "Fair Price Shops" (FPS) under public distribution systems.

(3) Understanding the need to improve agriculture sector, government implemented many programmes like land ceiling act, regulation of tenancy act, security of cultivating rights etc.

(4) Government has announced the policies to encourage agriculture, agriculture related industries such like cattle rearing, dairy industry, pisciculture and afforestation.
It helps in order to develop small irrigation schemes, household industries, cottage industries, small scale industries etc. In order to make people self-reliant, government has stressed on labour intensive industries, so that employment increases.
Government has implemented programmes of self-employment as a part of strategy to improve their condition. For this purpose new fields of employment have been opened so that their income increases,

(5) Government has improved the structure of education, health, residence, employment, family Planning, communication etc. It has improved irrigation facilities, roads, crop protection, skills and training field, agriculture, developed, varities of crops; bank loans for obtaining seeds, fertilizer, tractor etc. Such type of variety of steps have been undertaken for rural upliftment.
India will have to take firm steps to fulfill the dream of eradicating deep rooted problems of poverty and to complete the mission of World Bank regarding eradication of poverty from the world by 2030.

POVERTY ALLEVIATION PROGRAMME (PAP)

- In order to make poverty alleviation solutions successful, the rural and urban people living below poverty line should get direct financial benefit from various welfare schemes.
- There may be change in the names of these programmes but the basic objective is to create opportunity of employment for families suffering from poverty improve agriculture, rural upliftment, food security, provide education, develop skill through training so that the economic condition may improve leading social security and may bought them above poverty line.
- Present central and state government have implemented and may welfare programmes. It has tried to improve living standard of poor in cities by improving geographical and infrastructural services with the reduction in unemployment poverty will reduce.

Poverty alleviation programmes or schemes may be divided into five sections:

(1) Wage based employment Programme (2) Self-employment Programme

(3) Programmes related to food security (4) Programmes related to social safety

(5) Programmes of elimination of poverty in urban areas

(i) Pradhan Mantri Krishi Sinchai Yojna: Under National Agriculture Plan**:** there should be increase in agriculture growth rate and sectors related to it, improvement in irrigation facilities.

- Irrigation facility should reach every part of agricultural land, drip irrigation system should be used, along with construction of small, big, medium sized check dams to combat water problem. So that every field gets water.

(ii) Prime-minister Farm Safety Insurance Plan: By improving farm safety insurance plan, farmers are to be helped at the time of natural calamity by providing them economic support. Government started giving bonus at the purchase of cotton and concession at loss/damage of crops. Kshtimukt Krushi bhav panch has been set up to stabilize the prices.

(iii) National Drinking Water Programme : Programmes like providing water to every field, improving existing canal network, stop soil erosion, new tubewells for tribals, prevention of salinity have been implemented.

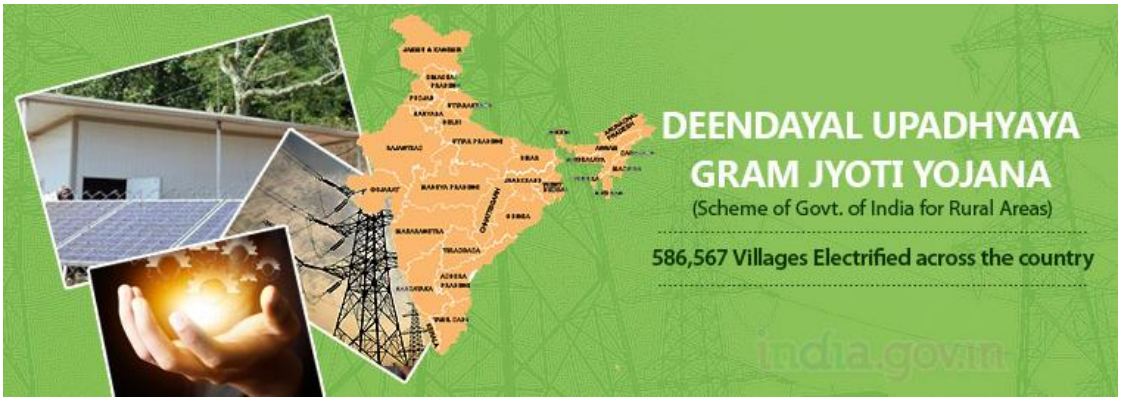
- Other than this programme of digging ponds, watershed development, construction of tanks, conservation of rain water, afforestation, constructing lining of canal, planting trees and shrubs, renovation and revitalization of check dams etc. have been started, so that people get employment in the rural areas and families come out of the vicious circle of poverty.

(iv) Reward Scheme: Under this programme agriculture market has been set up for the farmers in which farmers may get their products listed, online trader may bid from any place. Objective of this plan is to save farmers from loss faced by them due to mediators, brokers and they get more remuneration and earn more economic profit due to competition.

Thus, such steps should be taken which develop agriculture and yield maximum returns. So that farmer remains involved in agriculture business.

'From Gramoday to Bharat Uday': Through such programmes farmer oriented plans have been made to prevent loss faced by the farmers due to wild animals damaging the crops by providing them economic help to build fencing to protect them crops, production of grass for cattle at the time for crisis or drought and to help to construct cattle shelter for, rain forecasting and discovering mineral rich regions through ultra modern satellite or drone technique. Provision is made to maintain record of land survey.

Dindayal Upadhyay Gramjyoti Yojna: This plan is an effort to supply electricity to the rural areas without any hindrance. 24 x 7, day and night, providing electricity at homes and farms at concessional rates, lay down new lines to take electricity facility for 18000 villages which do not have electricity.



'Integrated Dairy Development Scheme For Tribal Women' for cattle Rearing: Under this programme help is provided for the development of geoponics and plantation agriculture, to help them to make pavilion for creeper crops, training and guidance for organic farmings grading and packaging.

Encouragement to Organic Farming: In this, helping farmers in registration, paying fees, help in purchasing farm products, arrangement for training and education of farmers, finance at low rate, arrangement for setting up proper market etc. along with environment protection and reduction in expenditure in agriculture sector are the major objectives of this scheme.

Chief Minister Village Road Scheme: Under this, planning is done regarding work related to roads' Village panchayats were helped to connect villages with one another through roads and highways, programmes like construction of toilets are implemented.

MAA ANNAPURNA YOJNA

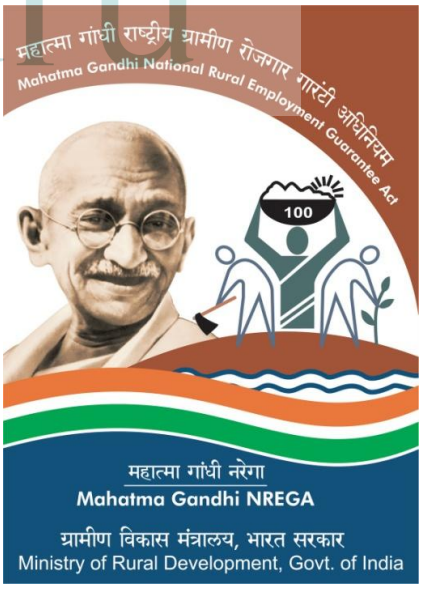
- Under this programme absolute poor families and people living below poverty line in cities and villages are given 35 Kg food grains per family every month by Gujarat Government which is provided free of cost and the poor people of middle class are given 5 Kg food grains at low rate.
- In which wheat is given at the cost of Rs.2 per kg, rice Rs.3 per kg, at fair price shops 3.62 crore people who are covered under this scheme get the benefits of food security, because of which a large sum of money spent on food will be saved.

SANSAD ADARSH GRAM YOJNA

Objectives of this scheme is to stop migration of the people from the villages to city. For this members of the parliament improve education, health, employment facilities in the village adopted by them in their constituency. Thus, they set up ideal village

MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT (MANREGA):

Employment oriented MANREGA programme has become popular with the slogan Our village, Our work, along with reasonable price.



- Objective of MANREGA is to enhance livelihood for families or adult living in rural areas of state, who can do physical labour though unskilled but are willing to work.
- For this purpose one person from every family is guaranteed wage employment for at least 100 days (7 hour per day) in a financial year.
- The government has fixed the wage rate accordingly it pays daily wages. If after asking for work, government fails to provide employment then as per rule government has to pay unemployment allowance.
- In this works like work for development of village, construction of personal toilets, personal wells, work levelling the land plain, horticulture, labour work in Indra Awas Yojna, cattle shade, making organic manure, shade for cocks and goats, yard for drying fish, cleaning of cannal, works related to water storage, tree plantation on roads are included.
- By guaranteeing definite wage based employment from these to every family, government tries to improve living standard of poor people under this programme.

Mission Mangalam: Through this programme state government has united women from families living below poverty line in 'Sakhi Mandal' or 'Self-Helping Groups'.

- Here they are given skill-based training so that they may generate employment for themselves through household industries circle and come out of the vicious cycle of poverty by preparing papad, pickle, agarbatti (incense stick) etc.

Dattopant Thegdi Vyaj Shay Yojna: Through this scheme government provides loan to artisans of handicraft and handloom cottage industries at low rate of interest to purchase raw material.

Jyoti Gramodyog Vikas Yojna: Objective of this plan is to provide self-employment opportunities to the unemployed in the rural areas to increase income and set up industry by giving them economic help and subsidy for establishing industrial plant, implements, electricity, land etc.

- With the new idea of "Start up India" Government provides training, free electricity, land and economic help, to the unemployed youth who are interested in setting up industry.

Bajpai Bankable Yojna: Under the programme urban and rural unemployed of age group 18 to 65, who are educated till 4^{th} standard are given training. So that they may set up industry or carry on traditional craft. They are also given finance of fixed amount, so that they may generate self-employment.

- Through Agro business policy 2016 state government has implemented plan to provide employment to 10 lakh people by setting up agro-food processing unit along with helping in export of processed food products so that poverty may be reduced?

UNEMPLOYMENT

Among current problems of India, problem of unemployment is crucial. Poverty originates due to unemployment. This is a long term problem and has got deep-rooted in economy. Maximum countries of the world are facing problem of unemployment.

Meaning Unemployment: One who is adult, whose age is 15-60 years, who is ready to work at the prevalent market rate of wages, has energy and qualification to work, who is in search of work but is not getting work, such a person is said to be unemployed. Such type of a condition in group is called unemployment.

- If people who demand wages more than the prevalent market rate, who are not in age group of 15-60, who are handicapped, weak, sick or old, lazy, housewife those who are not willing to work inspite of being capable are not considered as unemployed.

TYPES OF UNEMPLOYMENT

Following are the types of unemployment in Indian economy.

(1) Seasonal unemployment: Due to lack of irrigation facilities, irregularity in rainfall and lack of alternative employment farmers have to remain unemployed for 3 to 5 months in India. This is called seasonal unemployment.

(2) Frictional Unemployment: When new technology is introduced in place of old technology, labours remain unemployed for some time. This is called frictional unemployment.

(3) Structural Unemployment: Indian economy is backward and orthodox. Social backwardness, traditional orthodoxy, customs, illiteracy and lack of structural facilities are responsible for structural unemployment.

(4) Disguised Unemployment: Sometimes more than required number of workers are involved in an occupation. Even if a few labourers are removed from work, no decrease is recorded in total production. So these extra labourers are said to be unemployed in disguised way.

(5) Industrial Unemployment: In the industrial field if anyone has to remain unemployed for short term or long term due to changes taking place in industrial sector, such a situation is called industrial unemployment.

(6) Educated Unemployment: If a person has obtained at least secondary education or degree and is unemployed he is called educated unemployed.

Proportion of unemployment in India: There is difference in state wise condition of unemployment in India. Because of indifference of employment exchange, in registering the details of people interested in getting job, it is difficult to take out exact or approximate figure.

Still on the basis of figures of labour and employment Ministry of India and National Sample Survey (NSS) we get an idea about comprehensiveness of unemployment.

- In India more unemployment has been witnessed in states like Sikkim, Kerala, West Bengal, Uttar Pradesh, Chhattisgarh, Jammu-Kashmir, Tripura. While ratio of unemployment in Himachal Pradesh, Haryana, Karnataka, Chandigarh and Gujarat has remained low.
- Main reasons responsible for increasing unemployment in India are - increase in population, theoretical knowledge only, lack of practical knowledge, lack of technical knowledge or skill, failure in providing complete employment, irregularity in rainfall in agriculture area and more risk, losing interest in agriculture sector, improper irrigation facilities, lack of alternative employment during time other than agriculture season.

Efforts to reduce unemployment: Problem of unemployment is the weakest link of our planning. Poverty and unemployment are the two sides of the same coin. Both are inter-related. Main reason for poverty is unemployment.

Many effective steps have been taken by the government for poverty alleviation which is as follows:

(1) By aiming high goal, economic development of 10% per year which is acceptable to all. Increasing capital investment and opportunities of employment. New fields should be opened for fast and balanced economic development along with development in agriculture sector, small and household industries, cottage industries etc

(2) Government should lay stress on development of units using labour intensive method for production of consumer goods, small and cottage industries, gramodyog, handloom and handicraft skill. For it encouraging policies should be implemented in the schemes.

(3) More number of people may be employed in rural area by less investment by developing new method at the rural level in which more than one crop may be taken from the field in order to remove unemployment during the time when farmers are not engaged in agriculture.

(4) In order to sustain human development in rural areas health, education, pure drinking water, nutritious food, electricity, roads, banking, insurance, internet, improvement in communication and entertainment, water harvesting activities, constructing permanent public property, development of local industries and encouraging them, adopting employment oriented programmes should be undertaken.

(5) In order to decrease educated unemployment and unemployment among youth, skill should be developed and employment should be provided as per the qualification.
Such type of business oriented or technical education policy should be adopted, which produce skilled artisans. Curriculum of schools and colleges should be such that it satisfies the requirement of local industries.

(6) Labour ministry of Indian government and State government have implemented ambitious programmes like “Make in India”, “Skill India" and “Digital India” to enchance knowledge, understanding, enthusiasm and work capacity of youth along with industrial development, for this educational and training programmes have been started to develop skill. Technical colleges and universities have been set up nationwide.

- At present, Higher Institution like IIT and IIM are being established in most of the state of our country.

(7) Government has opened new areas of employment to plan manpower. Lot of employment opportunity is there in computer technology, information technology, pharmaceutical, business management, packing and processing, out sourcing, marketing, catering, event management, office management, hotel management, share-stock marketing etc.

(8) It is necessary that new business industry should be set up for industrial growth and generating of new employment opportunities. Investment is essential along with development of skill, co-operation, to increase entrepreneurship among youth

(9) Employment exchange centres work as a chain between unemployed and owners who were in search of such youth who were looking for employment, labours, workers or educated skilled and unskilled labour. This organization provides authentic information regarding registration of educated unemployed, this place and the type of work.

- It gives guidance in choosing one's own career. These centers provide sufficient information through magazines like 'Rozgar Karkidi". It provides free services through model career center and helpline number. 1800-425-1514 helps people by providing them important information, skill programme, employment fair etc.

WORLD LABOUR MARKET

- When change of labours is there among nations of the world, it is called world labour market.
- When labourers migrate from one country to another for employment business, training or higher education it is called movement of labour at international level.
- Walkout of brain power for educational knowledge, higher technical knowledge and skill development in search of more income, more facility, better job is brain drain or migration at the international level. This is a part of international migration.
- Like country receives foreign exchange as a part of income due to migration of people to foreign countries for jobs. Because of the flow of foreign money in to our country in this way, problem of foreign exchange is solved to certain extent.