NTSE

IMPORTANT QUESTIONS
PHYSICS

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1. **A particle is moving along a circular track of radius 1 m with uniform speed. Find the ratio of the distance covered and the displacement in half revolution.**
    (A) 1:1   (B) 0:1
    (C) π:1   (D) π:2

    Ans: D

2. **How do the directions of velocity and acceleration act when brakes are applied to a moving cycle?**
    (A) Opposite to each other   (B) In the same direction
    (C) Perpendicular to each other   (D) Parallel to each other

    Ans: A

3. **A submarine emits a SONAR pulse which returns from an underwater cliff in 1.05 second. If the speed of sound in salt water is 1531 m s^{-1}, how far away is the cliff?**
    (A) 1568 m   (B) 803.7 m
    (C) 1607.4 m   (D) 765.5 m

    Ans: B

4. **Sound travels with a speed of about 330 ms^{-1}. What is the wavelength of sound whose frequency is 660 Hz?**
    (A) 5 m   (B) 50 m
    (C) 0.5 m   (D) 500 m

    Ans: C

5. **A body of mass 2 kg is thrown up vertically with a kinetic energy of 490 J. If the acceleration due to gravity is 9.8 ms^{-2} the height at which the kinetic energy of the body becomes half of the original value is-**
    (A)   50 m   (B) 25 m
    (C)   12.5 m   (D)   10 m

    Ans: C

6. **A vehicle is moving on a straight horizontal road at a constant velocity of 10ms-1 the engine needs to spend 4 kJ of energy per second. The force on the vehicle is**
    (A)   0.2kN   (B)   0.4kN   (C)   0.6kN   (D)   1 N

    Ans: B

7. **When we vigorously shake a branch of a tree; some leaves get detached. It is due to the:**
   (A) Inertia of rest (B) Inertia of motion
   (C) Some leaves are loosely held by the branch (D) None of the above

Ans: **A**

8. **A body of mass M strikes against wall with a velocity v and rebounds with the same velocity. Its change in momentum is :**
   (A) Zero (B) Mv
   (C) -Mv (D) -2 Mv

Ans: **D**

9. **The period of a satellite in a circular orbit of radius R is T, the period of another satellite in a circular orbit of radius 4R is**
   (A) 4T (B) T/4
   (C) 8T (D) T/8

Ans: **C**

10. **If g is the acceleration due to gravity on the surface of earth, its value at a height equal to double the radius of earth is**
    (A) g (B) g/2
    (C) g/3 (D) g/9

Ans: **D**

11. **Fill in the blanks by choosing an appropriate option. On the surface of the earth, acceleration due to gravity at poles is (i) and that at equator is (ii). The value of acceleration due to gravity (iii) with height above the centre of earth to its surface and (iv) with height above the surface of earth.**
    (A) (i) – Maximum, (ii) – Minimum, (iii) – Increases, (iv) – Decreases
    (B) (i) – Maximum, (ii) – Minimum, (iii) -Decreases, (iv) – Decreases
    (C) (i) – Minimum, (ii) – Maximum, (iii) – Increases, (iv) – Decreases
    (D) (i) – Minimum, (ii) – Maximum, (iii) – Increases, (iv) – Increases

Ans: **A**

12. **Two wires of copper have length l and 2l and cross-section area 2A and A respectively. The ratio of their specific resistance would be**
    (A) 1 : 2 (B) 8 : 1
    (C) 1 : 8 (D) 1 : 1

Ans: **D**

13. **An electric refrigerator rated 400W operates 8 hours/day. What is the cost of the energy to operate if for 30 days at Rs. 3.00 per kWh?**

(A) 240 Rs.   (B) 260 Rs.

(C) 288 Rs.   (D) 388 Rs.

Ans: **C**

14. **Although wind is a free source of energy still a little percentage of electricity is produced from it because.**

(i) It is a dependable source of energy

(ii) The speed of wind must be greater than 15 km/h

(iii) Speed of wind must be greater than 5km/h

(iv) It needs a very large area compared to other power plants

The correct answer is

(A) (i) & (ii) are correct   (B) (i), (iii) & (iv) are correct

(C) (i),(ii) and (iv) are correct   (D) (iii) and (iv) are correct

Ans: **C**

15. **The process by which the percentage of U-235 in U-238 is increased, is called**

(A) Fission   (B) Fusion
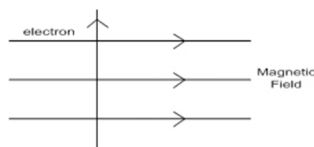
(C) Chain reaction   (D) Enrichment

Ans: **D**

16. **The essential difference between an AC generator and a DC generator is that**

(A) AC generator has an electromagnet while a DC generator has permanent magnet.

(B) DC generator will generate a higher voltage.

(C) AC generator will generate a higher voltage.

(D) AC generator has slip rings while the DC generator has a commutator.

Ans: **D**

17. **An electron enters alpha(a) magnetic field at right angles to it shown in figure. The direction of force acting on the electron will be –**

(A) To the left   (B) To the right

(C) Out of the age   (D) Into the page

Ans: **C**

18. An object of size 2.0 cm is placed perpendicular to the principal axis of a concave mirror. The distance of the object from the mirror equals the radius of curvature. The size of the image will be
   (A)   0.5cm   (B) 1.5cm
   (C)   1.0cm   (D) 2.0 cm

Ans: D

19. The refractive indices of water and glass are 4/3 and 3/2 respectively. The refractive index of water with respect to glass is
   (A) 8/9   (B) 2
   (C) 2/3   (D) 1/6

Ans: A

20. A rectangular tank of depth 8 meter is full of water (u=4/3), the bottom is seen at the depth.
   (A) 6 m   (B) 8/3 m
   (C) 8 cm   (D) 10 cm

Ans: A

21. When white light passes through a glass prism, one gets spectrum on the other side of the prism. In the emergent beam, the ray which is deviating least is
   (A) Violet ray   (B) Green ray
   (C) Red ray   (D) Yellow ray

Ans: C

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