1. **If Zinc displaces Copper from Copper Sulphate solution, this indicates that**

(a) Zinc is more reactive than Copper
(b) Copper is more reactive than Zinc
(c) Both Copper & Zinc are equally reactive
(d) Copper Sulphate is unstable

Ans. (a) Zinc is more reactive than Copper

Sol. A more reactive metal can displace a less reactive metal from its solution

2. **In the following reaction**

$H_2S_{(aq)} + Br_{2(aq)} \rightarrow 2HBr_{(aq)} + S$

(a) Br_2 is an oxidizing agent
(b) Br_2 is a reducing agent
(c) H_2S is an oxidizing agent
(d) Both (b) & (c)

Ans. (a) Br_2 is an oxidizing agent

Sol. Since Br_2 is getting reduced by gaining Hydrogen or electrons it is an oxidising agent.

3. **Black coating formed on the surface of silver articles upon prolonged exposure to air is**

(a) Silver Sulphide
(b) Silver Chloride
(c) Silver Carbonate
(d) Silver Sulphate

Ans. (a) Silver Sulphide

Sol. $2Ag + H_2S \rightarrow Ag_2S + H_2$

4. $xNH_3 + yCuO \rightarrow aCu + bN_2 + cH_2O$

(a) 2, 3, 3, 1, 3 (b) 2, 3, 3, 3, 1 (c) 2, 3, 3, 2, 3 (d) None of these

Ans. (a) 2, 3, 3, 1, 3

5. **Which of thf following is a dibasic acid?**

(a) HCl (b) H_3PO_4 (c) H_2SO_4 (b) HNO_3

Ans. (c) H_2SO_4

Sol. H_2SO_4 as it has two lomsable hydrogen atoms.

6. NH_4Cl **is a salt of -**

(a) Strong acid and strong base (b) Strong acid and weak base

(c) Weak acid & weak base (d) Weak acid & strong base

Ans. (b) Strong acid and weak hase

Sol. HCl is a strong acid and NH_4OH is a weak base.

7. **pH of 0.001 M** HCl **is –**

(a) 4 (b) 2 (c) 1 (d) 3

Ans. (d) 3

Sol. $pH = -\log_{10}\left[H^+\right]$

$= -\log_{10}\left[0.001\right]$

$= -\log_{10} 10^{-3}$

$pH = 3$

8. **When Ethanoic acid is heated with** $NaHCO_3$, **the gas evolved is –**

(a) H_2 (b) CO_2 (c) CH_4 (d) CO

Ans. (b) CO_2

Sol. $CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + H_2O + CO_2 \uparrow$

9. **Oils on treating with hydrogen in the presence of palladium or nickel catalyst form fats. This is an example of-**

(a) Addition reaction (b) Substitution reaction

(c) Displacement reaction (d) Oxidation reaction

Ans. (a) Addition reaction

Sol. Oils arc unsaturated compounds on addition of Hydrogen they get converted into fats which are saturated compounds.

10. **Cinnabar is an ore of –**

(a) Hg (b) Cu (c) Pb (d) Zn

Ans. (a) Hg

Sol. Cinnabar is an ore of mercury (HgS).

11. **Beakers A, B and C contains Zinc sulphate. Silver nitrate and Iron (II) sulphate solution respectively. Copper pieces are added to each beaker. Blue colour will appear in case of –**

(a) Beaker A (b) Beaker B

(c) Beaker C (d) All the beakers

Ans. (b) Beaker B

Sol. In Beaker B Silver Nitrate aqueous solution is there. As we know copper is more reactise as compared to silver it will displace silver from its salt solution and hence, colour of solution will become blue.

$$Cu + 2AgNO_{3(aq)} \rightarrow \underset{\text{Blue colour solution}}{Cu(NO_3)_2} + 2Ag$$

12. **The following equation represents the process of:**

$$2CuS(s) + 3O_{2(s)} \rightarrow 2Cu_2O_{(s)} + 2SO_{2(g)}$$

(a) Calcination (b) Reduction

(c) Roasting (d) Decomposition

Ans. (c) Roasting

Sol. Roasting is a process where sulphide ores are heated in excess of air to convert it into metal oxide.

13. **Which of the following metals is extracted only by electrolysis?**

(a) Zn (b) Al (c) Fe (d) C

Ans. (b) Al

Sol. Zn – Blast furnace

Fe – Blast furnace

Cu – Bessemerization

Al – Electrolysis

14. **Which of the following are not ionic compounds?**

(i) KCl (ii) HCl (iii) CCl_4 (iv) NaCl

(a) (i) and (ii) (b) (ii) und (iii) (c) (i) and (iii) (d) (ii) and (iv)

Ans. (b) (ii) and (iii)

Sol. H – Cl and C – Cl bonds are covalent bonds.

15. **Which of the following gives the correct increasing order of the atomic radii of O, K and N?**

(a) O, F, N (b) N, F, O (c) O, N, F (d) F, O, N

Ans. (d) F, O, N

Sol. Order of atomic radius

FLOLN

16. **Solid CO_2 is stored under –**

(a) Low pressure (b) High pressure

(c) Moderate pressure (d) Normal atmospheric pressure

Ans. (b) High pressure

Sol. High pressure ensures solid state of Carbon dioxide Lowering of pressure will cause the solid to change into the gaseous state (Solid Carbon dioxide is a sublimate substance)

17. **The boiling point of water on Celsius and Kelvin scale respectively is –**

(a) 373, 273 (b) 0,273 (c) 273,373 (d) 100,373

Ans. (d) 100, 373

18. **A mixture or Kthanol and water can he separated by-**

(a) Filtration (b) Decantation

(c) Fractional distillation (d) Sublimation

Ans. (c) Fractional distillation

Sol. Mixture of ethanol and water can be separated due to difference in their boiling points Boiling point of ethanol is $78°C$ and boiling point of water $=100°C$.

19. Which of the following are chemical changes?

(i) Decaying of wood

(ii) Burning of wood

(iii) Sawing of wood

(iv) Hammering of a nail into a piece of wood.

(a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (i) and (iv)

Ans. (a) (i) and (ii)

Sol. Chemical changes are irreversible in nature and new products are formed in a chemical change. When wood is sawed, or when a nail is hammered into wood, no new substance is formed.

20. Which of the following is an example of gel?

(a) Coloured gem (b) Jelly

(c) Smoke (d) Shaving cream

Ans. (b) Jelly

Sol. Gel is a colloid of solid dispersed in liquid Jelly is made by warming and then cooling a liquid containing gelatin or a similar setting agent.

21. Match the names of the scientists given in column – I with their contributions towards the understanding of the atomic structure as given in column – II and choose the correct option from the codes given below:

	Column – I		**Column – II**
(P)	Dalton	**(i)**	Atomic number
(Q)	E. Goldstein	**(ii)**	Indivisibility of atoms
(R)	Moseley	**(iii)**	Neutrons
(S)	J. Chadwick	**(iv)**	Canal rays

(a) (P) – (ii), (Q) – (iv), (R) – (i), (S) – (iii)

(b) (P) – (ii), (Q) – (i), (R) – (iv), (S) – (iii)

(c) (P) – (iv), (Q) – (ii), (R) – (i), (S) – (iii)

(d) (P) – (iii), (Q) – (iv), (R) – (i), (S) – (ii)

Ans. (a) (P) – (ii), (Q) – (iv), (R) – (i), (S) – (iii)

22. **How many molecules are present in 9 g of water?**

(a) 3.01×10^{23} (b) 6.022×10^{23} (c) 6.08×10^{23} (d) 3.82×10^{23}

Ans. (a) 3.01×10^{23}

Sol. 18 g water contain 6.023×10^{23} molecules

9 g water will contain $\frac{6.023\times10^{23}\times9}{18}=3.0115\times10^{23}$ molecules

23. **Mass of one Avogadro's number of O atoms is equal to –**

(a) 16 amu (b) 16 g (c) 32 g (d) 6 kg

Ans. (b) 16 g

Sol. 1 Avogadro number ≡ 1 mole O atoms ≡ Atomic mass of O atoms

24. **The currect formula of Aluminium Sulphate is –**

(a) $AlSO_4$ (b) Al_2SO_4 (c) $Al_3(SO_4)_2$ (d) $Al_2(SO_4)_3$

Ans. (d) $Al_2(SO_4)_3$

Sol. Valency of Al is 3 & that of sulphate ion (SO_4^{2-}) is 2, so the molecular formula of compound $Al_2(SO_4)_3$.

25. **The formula of the sulphate of an element X is $X_2(SO_4)_3$. The formula of nitride of element X will be:**

(a) X_2N (b) XN_2 (c) XN (d) X_2N_3

Ans. (c) XN

Sol. In $X_2(SO_4)_3$, Valency of $X=3$

Nitride ion ≡ N^{3-}

∴ So, formula of nitride of X = XN

26. **The number of molecules in 16.0 g of oxygen gas is:**

(a) 6.02×10^{23} (b) 6.02×10^{-23} (c) 3.01×10^{-23} (d) 3.01×10^{23}

Ans. (d) 3.01×10^{23}

Sol. Oxygen gas $= O_2$

Molecular mass of this gas $= 16 \times 2 = 32\,g$

$32\,g\,O_2$ has 6.023×10^{23} molecules of O_2

So, $16 g O_2$ has $\dfrac{6.023 \times 10^{23} \times 16}{32} = 3.011 \times 10^{23}$ molecules.

27. Which of the following is not correct according to Dalton's atomic theory?

(a) Matter is made up of atoms

(b) Atoms of all substances arc identical in all respects

(c) Atoms combine in a simple whole number ratio.

(d) Atoms of two elements can combine lo form more than one compound

Ans. (d) Atoms of all substances are identical in all respects

Sol. According to Dalton's atomic theory – atoms of same element are identical in all respects & atoms of different elements are non – identical.

28. The electron distribution in Aluminium atom is-

(a) 2, 8, 3 (b) 2, 8, 2 (c) 8, 2, 3 (d) 2, 3, 8

Ans. (a) 2, 8, 3

Sol. Atomic number of $Al \equiv 13$

Electronic configuration = 2, 8, 3

29. The mass number of an anion, X^{3-} is 14. If there are ten electrons in the anion, the number neutrons in the nucleus of atom X of the element will be –

(a) 10 (b) 14 (c) 7 (d) 5

Ans. (c) 7

30. An isotone of $^{76}_{32}Ge$ is :

(a) $^{77}_{32}Ge$ (b) $^{77}_{33}As$ (c) $^{77}_{34}Se$ (d) $^{79}_{34}Se$

Ans. (a) $^{77}_{33}As$

Sol. Isotones are elements which have some number of nuetrons.

$^{76}_{32}Ge$ $\quad 76 - 32 = 44$

$^{77}_{33}As$ $\quad 77 - 33 = 44$