

1. Plaster of paris is

- (a) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ (b) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
(c) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ (d) $\text{CaSO}_4 \cdot 4\text{H}_2\text{O}$

2. The most stable compound is

- (a) LiF (b) LiCl
(c) LiBr (d) LiI

3. Heavy water is

- (a) CaSO_4
(b) water contain CaSO_4 , MgSO_4
(c) D_2O
(d) water contain CaCO_3

4. When copper reacts with hot and conc. H_2SO_4 , gives

- (a) H_2 (b) N_2
(c) O_2 (d) SO_2

5. BaO_2 and ozone reacts to produce

- (a) Ba (b) Ba_2O_3
(c) BaO (d) $\text{Ba}(\text{OH})_3$

6. Heisenberg uncertainty principle can be explained as

- (a) $\Delta x \geq \frac{\Delta P \times h}{4\pi}$ (b) $\Delta x \times \Delta P \geq \frac{h}{4\pi}$
(c) $\Delta x \times \Delta P \geq \frac{h}{\pi}$ (d) $\Delta P \geq \frac{\pi h}{\Delta x}$

7. A gas mixture contains O_2 and N_2 in the ratio of 1 : 4 by weight. The ratio of their number of molecules is

- (a) 1 : 8 (b) 1 : 4
(c) 3 : 16 (d) 7 : 32

8. Bleaching powder is obtained by treating Cl_2 with

- (a) $\text{Ca}(\text{OH})_2$ (b) CaO
(c) CaCO_3 (d) CaCl_2

9. The de-Broglie wavelength of a particle with mass 1 kg and velocity 100 m/s is

- (a) 6.6×10^{-33} m (b) 6.6×10^{-36} m
(c) $3.3 \times 10^{+33}$ m (d) 3.3×10^{-36} m

10. The volume of a gas measured at 27°C and 1 atm pressure is 10 L. To reduce the volume to 2 L at 1 atm pressure, the temperature required is

- (a) 60 K (b) 75 K
(c) 150 K (d) 225 K

11. The number of moles of oxygen obtained by electrolytic decomposition of 108 g water is

- (a) 2.5 (b) 3
(c) 5 (d) 7.5

12. The change in entropy for the fusion of 1 mole of ice is [mp of ice = 273 K, molar enthalpy of fusion for ice = 6.0 kJ mol^{-1}]

- (a) $11.73 \text{ JK}^{-1} \text{ mol}^{-1}$
(b) $18.84 \text{ JK}^{-1} \text{ mol}^{-1}$
(c) $21.97 \text{ JK}^{-1} \text{ mol}^{-1}$
(d) $24.47 \text{ JK}^{-1} \text{ mol}^{-1}$

13. Which does not give a precipitate with AgNO_3 solution?

- (a) $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ (b) $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$
(c) $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$ (d) $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$

14. Total volume of atoms present in a face centred cubic unit cell of a metal is (r is atomic radius)

- (a) $\frac{16}{3} \pi r^3$ (b) $\frac{20}{3} \pi r^3$
(c) $\frac{24}{3} \pi r^3$ (d) $\frac{12}{3} \pi r^3$

15. Pure silicon doped with phosphorus is a

- (a) metallic conductor
- (b) insulator
- (c) *n*-type semiconductor
- (d) *p*-type semiconductor

16. Neutron is discovered by

- (a) Chadwick
- (b) Rutherford
- (c) Yukawa
- (d) Dalton

17. What is *X* in the following nuclear reaction ?



- (a) ${}_0n^1$
- (b) ${}_{-1}e^0$
- (c) ${}_{+1}e^0$
- (d) γ

18. Solubility product of PbCl_2 at 298 K is 1×10^{-6} .

At this temperature solubility of PbCl_2 in mol/L is

- (a) $(1 \times 10^{-6})^{1/2}$
- (b) $(1 \times 10^{-6})^{1/3}$
- (c) $(0.25 \times 10^{-6})^{1/3}$
- (d) $(2.5 \times 10^{-6})^{1/2}$

19. The pH of a 0.001 M solution of HCl is

- (a) 0
- (b) 3
- (c) 5
- (d) 10

20. Gold number is associated with

- (a) amount of gold
- (b) protective colloids
- (c) purple of cassius
- (d) electrophoresis

21. Noble gases are used in discharge tubes to give different colours. Reddish-orange glow is due to

- (a) Ar
- (b) Ne
- (c) Xe
- (d) Kr

22. The set representing the correct order for first ionisation potential is

- (a) $\text{K} > \text{Na} > \text{Li}$
- (b) $\text{Be} > \text{Mg} > \text{Ca}$
- (c) $\text{B} > \text{C} > \text{N}$
- (d) $\text{Ge} > \text{Si} > \text{C}$

23. Dry ice is

- (a) solid CO_2
- (b) solid camphor
- (c) solid SO_2
- (d) solid NO_2

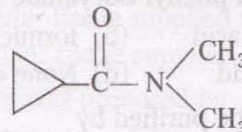
24. Methanol and ethanol are miscible in water due to

- (a) covalent character
- (b) hydrogen bonding character
- (c) oxygen bonding character
- (d) None of the above

25. Stereoisomers differ in

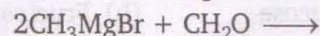
- (a) configuration
- (b) conformation
- (c) they do not differ
- (d) None of the above

26. IUPAC name of the following compound



- (a) N, N-dimethylcyclopropane carboxamide
- (b) N-methylcyclopropanamide
- (c) cyclopropionamide
- (d) None of the above

27. The product of following reaction is



- (a) CH_3OH
- (b) $\text{C}_2\text{H}_5\text{OH}$
- (c) CH_4
- (d) C_2H_6

28. Freon used as refrigerant is

- (a) $\text{CF}_2 = \text{CF}_2$
- (b) CH_2F_2
- (c) CCl_2F_2
- (d) CF_4

29. Lucas reagent is

- (a) anhy. ZnCl_2 and NH_3
- (b) anhy. ZnCl_2 and CaCl_2
- (c) anhy. ZnCl_2 and conc. HCl
- (d) anhy. ZnCl_2 and HCl gas

30. The enzyme which can catalyse the conversion of glucose to ethanol is

- (a) zymase
- (b) invertase
- (c) maltase
- (d) diastase

31. When dihydroxy acetone reacts with HIO_4 , the product is/are

- (a) HCHO
- (b) HCOOH
- (c) HCHO and HCOOH
- (d) HCHO and CO_2

32. Which of the following does not reduce Fehling's solution?

- (a) Benzaldehyde
- (b) Formic acid
- (c) Glucose
- (d) Fructose

33. Sodium formate on heating gives

- (a) oxalic acid and H_2
- (b) sodium oxalate and H_2
- (c) sodium oxalate
- (d) CO_2 and caustic soda

34. Reaction of ethyl formate with excess of CH_3MgI followed by hydrolysis gives

- (a) *n*-propyl alcohol
- (b) isopropyl alcohol
- (c) acetaldehyde
- (d) acetone

35. Hydrolysis of phenyl isocyanide forms
 (a) benzoic acid (b) formic acid
 (c) acetic acid (d) None of these
36. Styrene can be purified by
 (a) simple distillation
 (b) fractional distillation
 (c) steam distillation
 (d) vacuum distillation
37. Which of the following is not reducing sugar ?
 (a) Glucose (b) Fructose
 (c) Lactose (d) Sucrose
38. The monomer of teflon is
 (a) $\text{CHF} = \text{CH}_2$ (b) $\text{CF}_2 = \text{CF}_2$
 (c) $\text{CHCl} = \text{CHCl}$ (d) $\text{CHF} = \text{CHCl}$
39. The hybridisation state of carbon in fullerene is
 (a) sp (b) sp^2
 (c) sp^3 (d) sp^3d
40. A fruity smell is produced by the reaction of $\text{C}_2\text{H}_5\text{OH}$ with PCl_5
 (a) CH_3COCH_3 (b) CH_3COOH
 (c) PCl_5 (d) CH_3CHO

Answer – Key

1. a	2. a	3. c	4. d	5. c	6. b	7. d	8. a	9. b	10. a
11. b	12. c	13. d	14. a	15. c	16. a	17. d	18. c	19. b	20. b
21. b	22. b	23. a	24. b	25. a	26. a	27. b	28. c	29. c	30. a
31. d	32. d	33. b	34. c	35. b	36. d	37. d	38. b	39. b	40. b