1. Calcium carbide reacts with H_2O to produce :
   (a) ethane (b) methane
   (c) ethylene (d) acetylene

2. RNA differ from DNA in respect of base :
   (a) thyamine (b) adenine
   (c) cytosine (d) guanine

3. The oxidation number of nitrogen in $NaNO_2$ is :
   (a) +3 (b) +5
   (c) –3 (d) –5

4. Bauxite is an ore of :
   (a) Al (b) Ca
   (c) Cu (d) Ni

5. The best source of vitamin A is :
   (a) beans (b) pulses
   (c) orange (d) carrot

6. Plaster of paris is :
   (a) $CaSO_4 \cdot \frac{1}{2} H_2O$ (b) $CaSO_4 \cdot 2H_2O$
   (c) $CaSO_4 \cdot H_2O$ (d) $CaSO_4 \cdot 4H_2O$

7. Penicillin is :
   (a) analgesic (b) antipyretic
   (c) antimalarials (d) antibiotic

8. The most stable compound is :
   (a) LiF (b) LiCl
   (c) LiBr (d) LiI

9. Heavy water is :
   (a) $CaSO_4$
   (b) water contain $CaSO_4$, $MgSO_4$
   (c) D_2O
   (d) water contain $CaCO_3$

10. When copper reacts with hot and conc. H_2SO_4, gives :
   (a) H_2 (b) N_2
   (c) O_2 (d) SO_2

11. BaO_2 and ozone reacts to produce :

(a) Ba (b) Ba_2O_3

(c) BaO (d) $Ba(OH)_3$

12. 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) $\Delta P \geq \frac{\pi h}{\Delta x}$

13. 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

14. Bleaching powder is obtained by treating Cl_2 with :

(a) $Ca(OH)_2$ (b) CaO

(c) $CaCO_3$ (d) $CaCl_2$

15. Magnalium contains :

(a) Mg + Al (b) Mg + Cu

(c) Mg + Fe (d) Mg + Mn

16. The de-Broglie wavelenght 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

17. 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

18. Isotonic solutions have :

(a) same vapour pressure

(b) same osmotic pressure

(c) same boiling point

(d) same temperature

19. Epsom salt is :

(a) $BaSO_4 \cdot 2H_2O$ (b) $CaSO_4 \cdot H_2O$

(c) $MgSO_4 \cdot 2H_2O$ (d) $MgSO_4 \cdot 7H_2O$

20. Paracetamol is an :
(a) analgesic
(b) antipyretic
(c) both (a) and (b)
(d) none of the above

21. The number of moles of oxygen obtained by the electrolytic decomposition of 108 g water is :
(a) 2.5 (b) 3
(c) 5 (d) 7.5

22. 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 JK^{-1} mol^{-1}
(b) 18.84 JK^{-1} mol^{-1}
(c) 21.97 JK^{-1} mol^{-1}
(d) 24.47 JK^{-1} mol^{-1}

23. Which does not give a precipitate with $AgNO_3$ solution ?
(a) $[Co(NH_3)_6]Cl_3$ (b) $[Co(NH_3)_5Cl]Cl_2$
(c) $[Co(NH_3)_4Cl_2]Cl$ (d) $[Co(NH_3)_3Cl_3]$

24. 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) $\frac{12}{3}\pi r^3$

25. Pure silicon doped with phosphorus is a :
(a) metallic conductor
(b) insulator
(c) n-type semiconductor
(d) p-type semiconductor

26. Neutron is discovered by :
(a) Chadwick (b) Rutherford
(c) Yukawa (d) Dalton

27. What is X in the following nuclear reaction ?
$${}_7N^{14} + {}_1H^1 \longrightarrow {}_8O^{15} + X$$
(a) ${}_0n^1$ (b) ${}_{-1}e^0$
(c) ${}_{+1}e^0$ (d) γ

28. 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) $(0.25 \times 10^{-6})^{1/2}$

29. The pH of a 0.001 M solution of HCl is :

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

30. Gold number is associated with :

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

31. 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

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

(a) K > Na > Li (b) Be > Mg > Ca
(c) B > C > N (d) Ge > Si > C

33. Dry ice is :

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

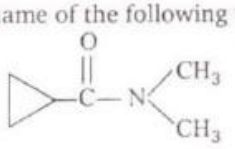
34. Methanol and ethanol are miscible in water due to :

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

35. Stereoisomers differ in :

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

36. IUPAC name of the following compound :



(a) *N*, *N*-dimethylcyclopropanecarboxamide
(b) *N*-methylcyclopropanamide
(c) cyclopropionamide
(d) none of the above

37. The product of following reaction is :

$$2CH_3MgBr + CH_2O \longrightarrow$$

(a) CH_3OH (b) C_2H_5OH
(c) CH_4 (d) C_2H_6

38. Freon used as refrigerant is :
(a) $CF_2 = CF_2$ (b) CH_2F_2
(c) CCl_2F_2 (d) CF_4

39. 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

40. The enzyme which can catalyse the conversion of glucose to ethanol is :
(a) zymase (b) invertase
(c) maltase (d) diastase

41. When dihydroxy acetone reacts with HIO_4, the product is/are :
(a) HCHO
(b) HCOOH
(c) HCHO and HCOOH
(d) HCHO and CO_2

42. Which of the following does not reduce Fehling's solution?
(a) Benzaldehyde (b) Formic acid
(c) Glucose (d) Fructose

43. 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

44. Reaction of ethyl formate with excess of CH_3MgI followed by hydrolysis gives :
(a) *n*-propyl alcohol (b) isopropyl alcohol
(c) acetaldehyde (d) acetone

45. Hydrolysis of phenyl isocyanide forms :
(a) benzoic acid (b) formic acid
(c) acetic acid (d) none of these

46. Styrene can be purified by :
(a) simple distillation
(b) fractional distillation
(c) steam distillation
(d) vacuum distillation

47. Which of the following is not reducing sugar ?
(a) Glucose (b) Fructose
(c) Lactose (d) Sucrose

48. The monomer of teflon is :
(a) $CHF = CH_2$ (b) $CF_2 = CF_2$
(c) $CHCl = CHCl$ (d) $CHF = CHCl$

49. The hybridisation state of carbon in fullerene is :
(a) sp (b) sp^2
(c) sp^3 (d) sp^3d

50. A fruity smell is produced by the reaction of C_2H_5OH with :
(a) CH_3COCH_3
(b) CH_3COOH
(c) PCl_5
(d) CH_3CHO

Answer keys

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

41. d. 42. d 43. b 44. c 45. b 46. d 47. d 48. b 49. b 50. b