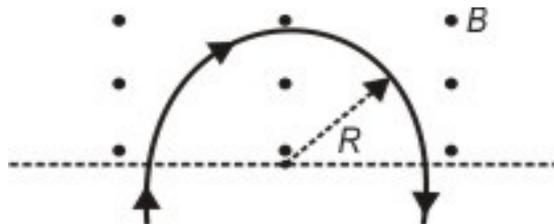


UP-CPMT - 2000

Paper-2

Physics

1. A ball A is thrown vertically upward with speed u . At the same instant another ball B is released from rest at height h . At time t , the speed of A relative to B is :
 - 1) u
 - 2) $u - 2gt$
 - 3) $\sqrt{u^2 - 2gh}$
 - 4) $u - gt$
2. The basic principle of rocket propulsion is based on :
 - 1) conservation of mass
 - 2) conservation of momentum
 - 3) conservation of energy
 - 4) Newton's third law
3. A wave of light of wavelength 6000 \AA falls on a plane surface ($\mu = \sqrt{3}$). If the reflected and refracted rays are perpendicular to each other, the angle of incidence is :
 - 1) 15°
 - 2) 45°
 - 3) 60°
 - 4) 75°
4. A solid sphere and a spherical shell both of same radius and mass roll down from rest without slipping on an inclined plane from the same height h . The time taken to reach the bottom of the inclined plane is :
 - 1) more for spherical shell
 - 2) more for solid sphere
 - 3) same for both
 - 4) depends on coefficient of friction
5. The semi-circular portion (radius R) of a wire carrying current i is placed in a uniform magnetic field B . The magnetic field is perpendicular to the plane of the circle. The magnitude of the force on the wire is :



- 1) zero
- 2) $i \pi R B$

- 3) $2 i \pi R B$
- 4) $2 i R B$

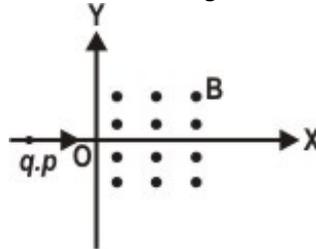
6. A voltage V is applied across a parallel plate capacitor (plate area A , separation d) filled with a linear dielectric of dielectric constant K . The electric field strength between the plates is :

- 1) (V/d)
- 2) (KV/d)
- 3) (V/Kd)
- 4) (KVd/A)

7. An object of mass m is attached to a vertically hanging spring. It is released suddenly from the unstretched position of the spring. The maximum expansion of spring is :

- 1) $(mg/2k)$
- 2) $(2mg/k)$
- 3) $(3mg/k)$
- 4) zero

8. A uniform magnetic field $\vec{B} = B\vec{k}$ exists every where in the region $X > 0$. A positively charged particle moving along X-axis [charge q , momentum p] enters the field region as shown in figure. The particle will exit the field region at the point $(0, y)$, where y is equal to :



- 1) $-(2p/qB)$
- 2) $(2p/qB)$
- 3) $(qB/2p)$
- 4) $-(qB/2B)$

9. A particle of mass 0.5 kg is moving in the X-Y plane with uniform speed of 3 m/s parallel to Y-axis and crosses the X-axis at 2 m from origin. The angular momentum about origin is :

- 1) zero
- 2) $3 \text{ kg m}^2/\text{s}$
- 3) $6 \text{ kg m}^2/\text{s}$
- 4) changing with time

10. Consider transverse waves in a stretched string, light waves and sound waves in air. The polarisation can be observed for :

- 1) light and sound waves in air
- 2) sound waves in air and string waves

- 3) light waves and string waves
- 4) all of the above

11. The unit of Young's modulus is :

- 1) J
- 2) N/m
- 3) N/m^2
- 4) J/m^2

12. An object is magnified 10 times using a lens of focal length f when the image is projected on the screen. The distance of the screen from the lens is :

- 1) $(f/11)$
- 2) $(f/10)$
- 3) $(11 f)$
- 4) $(10 f)$

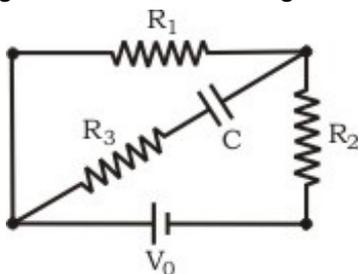
13. The magnetic field due to small bar magnet at a distance 24 cm on the transverse axis of magnet is B and the magnetic field at a distance d from the magnet along longitudinal axis is $16B$. Then the distance d is :

- 1) 12 cm
- 2) $12\sqrt{2}$ cm
- 3) $12\sqrt{3}$ cm
- 4) 16 cm

14. At a certain time, a radioactive sample contains 2×10^{20} atoms and its disintegration rate 3×10^{10} atoms/s. When 2×10^{15} atoms are left to decay, its disintegration rate will be :

- 1) $(1/2) \times 10^{10}$ atoms/s
- 2) $0.693 \times 3 \times 10^{10}$ atoms/s
- 3) 3×10^5 atoms/s
- 4) 3×10^{10} atoms/s

15. In the given circuit, the voltage across R_2 is :



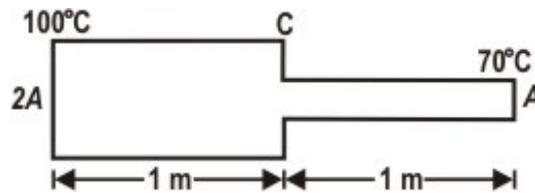
- 1) zero
- 2) V_0
- 3) $(V_0 R_2)/(R_1 + R_2 + R_3)$

4) $(V_0 R_2)/(R_1 + R_2)$

16. In the hydrogen spectrum λ_3 and λ_2 be the wavelengths of radiation emitted due to transition from second and first excited states to the ground state. Then the ratio (λ_3/λ_2) is :

- 1) 27/32
- 2) 32/27
- 3) 16/9
- 4) 9/16

17. A metal rod of length 2m has cross-sectional areas $2A$ and A as shown in figure. The ends are maintained at temperatures 100°C and 70°C . The temperature at middle point C is :



- 1) 75°C
- 2) 85°C
- 3) 90°C
- 4) 0°C

18. The equation of travelling wave in a stretched string is

$$y = 0.5 \sin \pi((x/2) - 50t).$$

The maximum transverse speed of any point of string will be : (x and y are in cm)

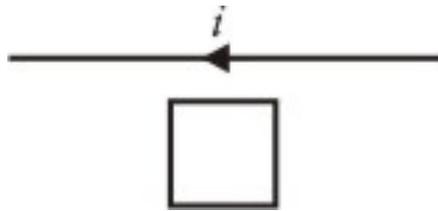
- 1) 25 cm/s
- 2) 75 cm/s
- 3) 25π cm/s
- 4) 75π cm/s

19. A particle of mass 0.01 kg is projected with velocity $\vec{v} = 2\hat{i}$ m/s from point $(x = 0, y = 20)$.

After 2 s, its position co-ordinates will be :

- 1) 4, 0
- 2) 4, -10
- 3) 0, 4
- 4) 4, 10

20. Current i flows through a long wire. A square loop made of conducting wire held below the wire in the same vertical plane is released and allowed to fall under gravity. If acceleration of the loop is a , then :



- 1) a current is induced in anticlockwise direction and $a > g$
 - 2) current is induced in the clockwise direction and $a < g$
 - 3) current is induced in anticlockwise direction and $a < g$
 - 4) no current is induced in the loop and $a = g$
21. A ball moving horizontally towards the left with speed 5 m/s collides with a vertical wall which is moving to the right with a speed of 5 m/s and rebounds. After rebounding the speed of the ball relative to ground will be :
- 1) 6 m/s
 - 2) 12 m/s
 - 3) 15 m/s
 - 4) 18 m/s
22. Nuclear fusion is common to the pair :
- 1) thermonuclear reactor, uranium based nuclear reactor
 - 2) energy production in sun, uranium based nuclear reactor
 - 3) energy production in sun, hydrogen bomb
 - 4) disintegration of heavy nuclei, hydrogen bomb
23. A satellite of mass m , moving around the earth in a circular orbit of radius R , has angular momentum L . The areal velocity of satellite is : (M_e = mass of earth)
- 1) $(L/2m)$
 - 2) (L/m)
 - 3) $(2L/m)$
 - 4) $(2L/M_e)$
24. A satellite orbiting the circular orbit of radius R completes 1 rev in 3 h. If orbital radius of geostationary satellite is 36000 km, the orbital radius R of satellite is :
- 1) 3000 km
 - 2) 9000 km
 - 3) 10000 km
 - 4) 18000 km
25. The instantaneous displacement of a simple pendulum oscillator is given by $x = A \cos(\omega t + (\pi/4))$.
Its velocity will be maximum at time :
- 1) $(\pi/4\omega)$

- 2) $(\pi/2\omega)$
- 3) $(\pi/3\omega)$
- 4) $(2\pi/\omega)$

26. The potential energy function of a particle of mass m is given by $U = (1/2)kx^2$ for $x < 0$ and $U = 0$ for $x \geq 0$. If total energy is E , then its speed at $x = \sqrt{(2E/K)}$ is :

- 1) zero
- 2) $\sqrt{(2E/m)}$
- 3) $\sqrt{(E/m)}$
- 4) $\sqrt{(E/2m)}$

27. The emf produced in a coil is 5 V when current is changed at the rate of 20 A/s. The magnetic energy stored in the coil when a current of 0.2A flows through it is :

- 1) 2×10^{-3} J
- 2) 6×10^{-3} J
- 3) 5×10^{-3} J
- 4) 0.32 J

28. If the temperature of a black body is doubled, the wavelength at which the spectral radiancy has its maximum, is :

- 1) doubled
- 2) halved
- 3) quadrupled
- 4) unchanged

29. A satellite of mass m is put into a circular orbit of height h from the surface of the earth (mass = M_e , radius = R_e). The orbital speed of satellite is :

- 1) $\sqrt{\left\{ \frac{2GM_e h}{R_e(R_e + h)} \right\}}$
- 2) $\sqrt{\left\{ \frac{2GM_e}{R_e + h} \right\}}$
- 3) $\sqrt{\left\{ \frac{GM_e}{R_e + h} \right\}}$
- 4) $\sqrt{\left\{ \frac{GM_e}{2(R_e + h)} \right\}}$

30. A block of mass 4 kg is placed on a rough horizontal plane. A time dependent horizontal force $F = kt$ acts on the block, $k = 2 \text{ N/s}^2$. The frictional force between the block and plane at time $t = 2\text{s}$ is : ($\mu = 0.2$)

- 1) 4 N
- 2) 8 N
- 3) 16 N
- 4) zero

31. A beam of electrons moving at a speed of 10^6 m/s along a line produces a current of 1.6×10^{-6} A. The number of electrons in 1 m of the beam is :

- 1) 10^8
- 2) 10^7
- 3) 10^5
- 4) 10^{10}

32. Bernoulli's theorem for non-viscous incompressible fluid is based on the conservation of :

- 1) mass
- 2) momentum
- 3) kinetic energy
- 4) total energy

33. A monoatomic gas of n -moles is heated from temperatures T_1 to T_2 under two different conditions

- (i) at constant volume and
- (ii) at constant pressure.

The change in internal energy of the gas is :

- 1) more for (i)
- 2) more for (ii)
- 3) same in both cases
- 4) independent of number of moles

34. In an experiment of photoelectric effect, the stopping potential when plotted against frequency of incident light gives a straight line of slope :

- 1) h for all metals
- 2) (h/e) for all metals
- 3) (e/m) for all metals
- 4) different for different metals

35. The time period of a simple pendulum length L as measured in an elevator descending with acceleration $g/3$ is :

- 1) $2\pi \sqrt{3L/g}$
- 2) $\pi \sqrt{5L/g}$
- 3) $2\pi \sqrt{3L/2g}$
- 4) $2\pi \sqrt{2L/3g}$

36. A conducting ring of radius b is placed co-axially around a long solenoid of radius a ($b < a$) having n turns per unit length. A current $i = i_0 \cos \omega t$ flows through the solenoid. The induced emf in the ring is :

- 1) zero
- 2) $\mu_0 n i_0 \pi a^2 \omega$
- 3) $\mu_0 n i_0 \pi a^2 \cos \omega t$
- 4) $\mu_0 n i_0 \pi b^2 \omega \sin \omega t$

37. An object of mass $3M$ at rest splits into three equal fragments. Two fragments have velocities $v \hat{j}$ and $-v \hat{i}$. The velocity of third fragment will be :

- 1) $v (\hat{j} - \hat{i})$
- 2) $v (\hat{i} - \hat{j})$
- 3) $v (\hat{i} + \hat{j})/2$
- 4) $v (\hat{j} + \hat{i})/\sqrt{2}$

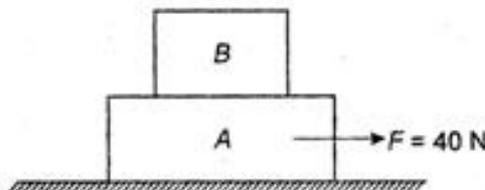
38. In an interference experiment ratio of amplitudes of coherent waves $(a_1/a_2) = (1/2)$, then ratio of maximum and minimum intensity of fringes (i.e., (I_{\max}/I_{\min})) is :

- 1) 3
- 2) 6
- 3) 9
- 4) 18

39. Capacity of an isolated sphere is increased n times when it is enclosed by an earthed concentric sphere. The ratio of their radii is :

- 1) $(n/n - 1)$
- 2) $(n^2/2n - 1)$
- 3) $(2n/n - 1)$
- 4) $(2n + 1/n + 1)$

40. A block B of mass 5 kg is placed on another block A of mass 10 kg, which rests on a smooth horizontal surface. If $\mu = 0.2$ between A and B and a force $F = 40$ N is applied, the acceleration of A is :



- 1) 3 m/s^2
- 2) 6 m/s^2
- 3) 9 m/s^2
- 4) $(8/3) \text{ m/s}^2$

41. A conducting shell of radius R carries charge Q . A point charge $-Q$ is placed at the centre. The electric field strength \vec{E} at a distance r from the centre of shell is :

- 1) $\vec{E} = -(Q\vec{r}/4\pi\epsilon_0R^3)$ for $r < R = (Q\vec{r}/4\pi\epsilon_0R^3)$ for $r > R$
- 2) $\vec{E} = +(Q\vec{r}/4\pi\epsilon_0R^3)$ for $r > R = 0$ for $r < R$
- 3) $\vec{E} = -(Q\vec{r}/4\pi\epsilon_0R^3)$ for $r < R = 0$ for $r > R$
- 4) $\vec{E} = 0$ for $r < R = (2Q\vec{r}/4\pi\epsilon_0R^3)$ for $r > R$

42. A small ball (mass m) falling under gravity in a viscous medium experiences a drag force proportional to the instantaneous speed u such that $F_t = ku$. Then the terminal speed of ball with in viscous medium is :

- 1) (k/mg)
- 2) (mg/k)
- 3) $\sqrt{(mg/k)}$
- 4) $(mg/k)^2$

43. In a travelling wave

$$y = 0.1 \sin \pi(x - 330t + (2/3)).$$

The phase difference between $x_1 = 3$ m and $x_2 = 3.5$ m is :

- 1) $(\pi/2)$
- 2) $\pi/3$
- 3) $(3\pi/2)$
- 4) $(2\pi/3)$

44. Two monoatomic gases A and B having atomic masses M_A and M_B respectively are kept at the same temperature. The ratio of rms velocities (v_A/v_B) is :

- 1) 1
- 2) $\sqrt{(M_A/M_B)}$
- 3) (M_A/M_B)
- 4) $\sqrt{(M_B/M_A)}$

45. Two moles of monoatomic ideal gas at 60°C are mixed adiabatically with one mole of another monoatomic ideal gas at 12°C . The final temperature of mixture is :

- 1) 22°C
- 2) 44°C
- 3) 88°C
- 4) 36°C

46. An object is tied to a string and rotated in a vertical circle of radius r . If constant speed is maintained along the trajectory and $(T_{\max}/T_{\min}) = 2$, then (v^2/rg) is :
- 1) 1 2) 2 3) 3 4) 4
47. A long frictionless horizontal rod is set into rotation about a vertical axis passing through its centre. Two beads placed on the rod on either side of the axis, are released from rest. The angular speed of the rod :
- 1) decreases with time
 2) increases with time due to work done by the beads
 3) increases with time due to work done by centrifugal force
 4) remains unchanged
48. Two concentric spherical conducting shells of radii r and R ($R > r$) carry charges q and Q , respectively. The two shells are now connected by a conducting wire. The final charge on the inner shell is :
- 1) zero
 2) $((Q + q)r)/R$
 3) $((Q - q)r)/R$
 4) qr/R
49. An object lies at the floor of salt-water lake $\mu = \sqrt{2}$ at a depth d . For the object to be visible to an observer in a boat on the surface, the maximum horizontal distance of the boat from the object is :
- 1) d 2) $2d$ 3) $\sqrt{2}d$ 4) $d/\sqrt{2}$
50. In a series L-C-R circuit connected to an AC source operating at angular frequency $\omega = 1/\sqrt{LC}$ and voltage of amplitude V_0 , the algebraic sum of the potential difference across the capacitor and inductor is :
- 1) zero
 2) $V_0/\omega L$
 3) ωCV_0
 4) $2V_0$

Chemistry

51. What product is formed on heating two molecules of urea ?
- 1) Uric acid
 2) Biuret
 3) Nitrogen
 4) Carbon dioxide
52. If two valencies of carbonyl group are satisfied by two alkyl groups, the compound formed

is :

- 1) acid
- 2) aldehyde
- 3) ketone
- 4) acid anhydride

53. The dissociation constant of a 0.1 M weak acid is 4.9×10^{-8} , its percentage ionization is :

- 1) 0.07%
- 2) 0.007%
- 3) 0.49%
- 4) 0.049%

54. A centinormal solution of a monobasic acid is 100% ionised. Its pH is :

- 1) 2
- 2) 4
- 3) 6
- 4) 1

55. Ethylamine on heating with CHCl_3 and KOH produce bad smelling compound. This compound is :

- 1) $\text{CH}_3\text{CH}_2\text{CN}$
- 2) $\text{CH}_3\text{CH}_2\text{NC}$
- 3) CH_3NCO
- 4) CH_3CNO

56. Heavy water is :

- 1) water at 4°C
- 2) water containing heavy ions
- 3) D_2O
- 4) water containing sulphate of Ca

57. The rate constant of first order reaction is 10^{-2} min^{-1} . The half-life period of reaction is :

- 1) 0.693 min
- 2) 69.3 min
- 3) 6.93 min
- 4) 6930 min

58. Which one of the following are rare gases ?

- 1) Helium
- 2) Neon
- 3) Krypton
- 4) All of these

59. Nitrobenzene on heating with a mixture of conc. HNO_3 and conc. H_2SO_4 produce :

- 1) m-nitrobenzene
- 2) m-dinitrobenzene
- 3) p-dinitrobenzene
- 4) o-dinitrobenzene

60. Gammexane is :

- 1) C_6H_5COCl
- 2) $C_6H_5CH_2Cl$
- 3) $C_6H_6Cl_4$
- 4) $C_6H_6Cl_6$

61. The final step for the extraction of copper from copper pyrite in Bessemer converter involves the reaction :

- 1) $Cu_2S + 2FeO \rightarrow 2Cu + 2Fe + SO_2$
- 2) $Cu_2S + 2Cu_2O \rightarrow 6Cu + SO_2$
- 3) $4Cu_2O + FeS \rightarrow 8Cu + 2FeSO_4$
- 4) $2Cu_2O + FeS \rightarrow 4Cu + Fe + SO_2$

62. When benzyl amine reacts with HNO_2 , the product is :

- 1) C_6H_5OH
- 2) $C_6H_5CH_2OH$
- 3) $C_6H_5CH_2NH_2$
- 4) none of these

63. At what centigrade temperature will be the volume of a gas at $0^\circ C$, becomes double itself, when pressure remains constant ?

- 1) $0^\circ C$
- 2) $273^\circ C$
- 3) 273 K
- 4) $373^\circ C$

64. Nessler's reagent is used for the test of :

- 1) CrO_4^{2-}
- 2) MnO_4^-
- 3) NH_4^+
- 4) PO_4^{3-}

65. Which one of the following is used as antiknock in petrol fuel ?

- 1) Tetraethyl lead

- 2) Basic lead sulphate
- 3) Basic lead chromate
- 4) Lead tetra acetate

66. During the extraction of Fe the slag obtained is :

- 1) FeSO_3
- 2) FeO
- 3) CaSiO_3
- 4) MgSiO_3

67. Water gas is :

- 1) $\text{CO} + \text{H}_2\text{O}$
- 2) $\text{CO} + \text{H}_2$
- 3) $\text{CO} + \text{N}_2$
- 4) $\text{CO} + \text{H}_2 + \text{N}_2$

68. By which reaction, a ketone can be converted into a hydrocarbon ?

- 1) Cannizaro reaction
- 2) Aldol condensation
- 3) Wolff-Kishner reaction
- 4) Reimer-Tiemann reaction

69. A substance which accelerate the chemical reaction is known as :

- 1) positive catalyst
- 2) negative catalyst
- 3) induced catalyst
- 4) auto catalyst

70. When a buffer solution of CH_3COONa and CH_3COOH is diluted with water then :

- 1) H^+ ion concentration increases
- 2) H^+ ion concentration decreases
- 3) H^+ ion concentration remains constant
- 4) CH_3COO^- ion concentration increases

71. $\text{CaC}_2 + \text{H}_2\text{O} \rightarrow \text{A} \xrightarrow{\text{H}_2\text{SO}_4/\text{HgSO}_4} \text{B}$, then A and B are :

- 1) CH_4 and HCOOH
- 2) C_2H_2 and CH_3COOH
- 3) C_2H_2 and CH_3CHO
- 4) C_2H_4 and CH_3COOH

72. Which is not affected by temperature ?

- 1) Normality
- 2) Molality
- 3) Molarity
- 4) All of these

73. By the ideal gas law, the pressure of 0.60 mole NH_3 gas in a 3.00 L vessel at 25°C is :

- 1) 0.0489 atm
- 2) 4.89 atm
- 3) 0.489 atm
- 4) 4890 atm

74. The enthalpy of formation of $\text{C}_2\text{H}_6(\text{g})$ is $-2826 \text{ kJ mol}^{-1}$. The bond energy of C-H bond is 416 kJ mol^{-1} . The bond energy of C-C is :

- 1) 330 kJ/mol
- 2) -330 kJ/mol
- 3) 5536 kJ/mol
- 4) -5536 kJ/mol

75. In value of 1 amu is equal to :

- 1) $1.66 \times 10^{-24}\text{g}$
- 2) 15.00 g
- 3) $1.9924 \times 10^{-24}\text{g}$
- 4) 3.0 g

76. The correct order of acid strength is :

- 1) $\text{CH}_3\text{CBr}_2\text{COOH} > \text{CH}_3\text{CCl}_2\text{COOH} > \text{CH}_3\text{CF}_2\text{COOH}$
- 2) $\text{CH}_3\text{CCl}_2\text{COOH} > \text{CH}_3\text{CBr}_2\text{COOH} > \text{CH}_3\text{CF}_2\text{COOH}$
- 3) $\text{CH}_3\text{CF}_2\text{COOH} > \text{CH}_3\text{CBr}_2\text{COOH} > \text{CH}_3\text{CCl}_2\text{COOH}$
- 4) $\text{CH}_3\text{CF}_2\text{COOH} > \text{CH}_3\text{CCl}_2\text{COOH} > \text{CH}_3\text{CBr}_2\text{COOH}$

77. Acetic acid and sodium hydroxide react to produce :

- 1) CH_3OH
- 2) $\text{CH}_3\text{CH}_2\text{OH}$
- 3) $\text{CH}_3\text{CH}_2\text{NH}_2$
- 4) CH_3COONa

78. The atomic number of an element is equal to the :

- 1) number of neutrons

- 2) electrical charge of the nucleus
- 3) weight of the nucleus
- 4) atomic weight divided by two

79. The shape of NH_3 molecule is :

- 1) pyramidal
- 2) tetrahedral
- 3) linear
- 4) trigonal planar

80. Glucose gives silver mirror test with Tollen's reagent. It shows the presence of :

- 1) aldehyde group
- 2) acidic group
- 3) alcoholic group
- 4) ketonic group

81. When a Zn strip is placed in CuSO_4 solution, the Cu gets precipitated because standard potential of Zn is :

- 1) $< \text{Cu}$
- 2) $> \text{Cu}$
- 3) $< \text{SO}_4$
- 4) $> \text{SO}_4$

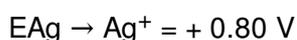
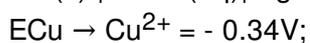
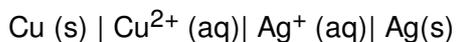
82. Isomers having same structural formula but different arrangement of atoms or groups are :

- 1) metamers
- 2) tautomers
- 3) functional
- 4) stereoisomers

83. The compound formed by the reaction of acetamide with bromine in presence of a base is :

- 1) CH_3NC
- 2) $\text{CH}_3\text{CH}_2\text{NH}_2$
- 3) CH_3NH_2
- 4) CH_3CN

84. The emf of the cell



- 1) +0.46 V
- 2) - 0.46 V
- 3) +1.14V
- 4) -1.14 V

85. Benzene on heating with chlorine in presence of sunlight gives the product :

- 1) $C_6H_6Cl_6$
- 2) C_6H_6Cl
- 3) C_6Cl_6
- 4) $C_6H_4Cl_2$

86. Hinsberg's reagent is :

- 1) $C_6H_5SO_2Cl$
- 2) $C_6H_5CH_2Cl$
- 3) C_6H_5COCl
- 4) C_6H_5Cl

87. Scurvy is caused due to the deficiency of vitamin :

- 1) C
- 2) A
- 3) B₁
- 4) K

88. Glycerol is :

- 1) primary alcohol
- 2) secondary alcohol
- 3) monohydric alcohol
- 4) trihydric alcohol

89. The use of plaster of Paris is in :

- 1) whitewash
- 2) tooth-paste
- 3) black-board chalk
- 4) surgery and dentistry

90. The number of unpaired electrons in oxygen molecule is :

- 1) zero
- 2) one
- 3) two
- 4) three

91. By which reaction, benzaldehyde is converted to benzyl alcohol ?

- 1) Fittig reaction
- 2) Cannizaro's reaction
- 3) Wurtz reaction
- 4) Wurtz-Fittig reaction

92. 0.2595 g of organic substance gives 0.35 g of barium sulphate on quantitative analysis. The percentage of sulphur is :
- 1) 10.02 %
 - 2) 20.02 %
 - 3) 17.5 %
 - 4) 18.52 %
93. In adsorption of oxalic acid on activated charcoal, the activated charcoal is :
- 1) adsorbent
 - 2) adsorbate
 - 3) adsorber
 - 4) occlusion
94. In the extraction of aluminium from bauxite, cryolite is used to :
- 1) increase the melting point of alumina
 - 2) decrease the melting point of alumina and increase conductivity
 - 3) decrease the conductivity of alumina
 - 4) purify the bauxite
95. Name the product formed by the reaction of fluorine with hot sodium hydroxide :
- 1) NaO
 - 2) O₂
 - 3) O₃
 - 4) none of the above
96. In the following reaction
- $$\text{C}_6\text{H}_{11}\text{O}_5\text{OH} + \text{CH}_3\text{OH} \xrightarrow{\text{HCl}} \text{A} + \text{H}_2\text{O}$$
- The compound A is :
- 1) C₆H₁₁O₅
 - 2) C₆H₁₁OH
 - 3) C₆H₁₁O₅CH₃
 - 4) C₆H₁₁O₅.OCH₃
97. Geminal dihalide is :
- 1) BrCH₂ - CH₂ - CH₂Br
 - 2) CH₂Cl - CH₂Br
 - 3) CH₃CCl₂ - CH₃
 - 4) CH₃CHBr - CH₂Br
98. White phosphorus contains :

- 1) P₄
- 2) P₆
- 3) P₈
- 4) P₂

99. The first ionisation potential will be maximum for :

- 1) uranium
- 2) iron
- 3) hydrogen
- 4) lithium

100. BaSO₄ is insoluble in water because of :

- 1) low hydration energy
- 2) low lattice energy
- 3) high lattice energy
- 4) both (1) and (3)

Answer Key

1) 1	2) 4	3) 3	4) 1	5) 4	6) 3	7) 2	8) 1	9) 2	10) 3
11) 3	12) 3	13) 1	14) 3	15) 4	16) 1	17) 3	18) 3	19) 1	20) 3
21) 3	22) 3	23) 1	24) 2	25) 1	26) 2	27) 3	28) 2	29) 3	30) 1
31) 2	32) 4	33) 3	34) 2	35) 3	36) 4	37) 2	38) 3	39) 1	40) 1
41) 2	42) 2	43) 1	44) 4	45) 2	46) 3	47) 1	48) 1	49) 1	50) 1
51) 2	52) 3	53) 1	54) 1	55) 2	56) 3	57) 2	58) 4	59) 2	60) 4
61) 2	62) 2	63) 2	64) 3	65) 1	66) 3	67) 2	68) 3	69) 1	70) 3
71) 3	72) 2	73) 2	74) 1	75) 1	76) 4	77) 4	78) 2	79) 1	80) 1
81) 1	82) 4	83) 3	84) 4	85) 1	86) 1	87) 1	88) 4	89) 4	90) 3
91) 2	92) 4	93) 1	94) 2	95) 2	96) 4	97) 3	98) 1	99) 3	100) 4