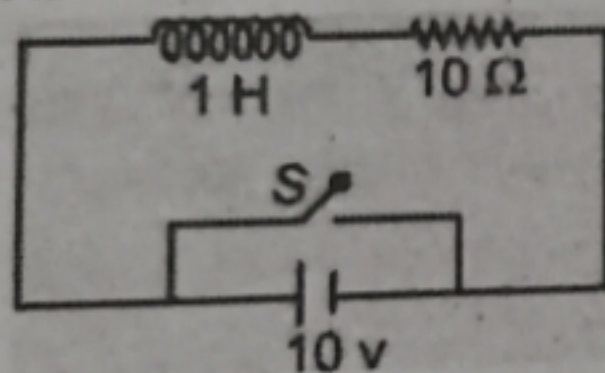


PHYSICS

Choose the correct answer :

[SECTION-A]

1. Consider a series LR circuit with a switch as shown in figure. If the switch 'S' is closed down at $t = 0$ then, the magnitude of change in flux through the ideal inductor in one time constant of the circuit is



- (1) $10 \left(\frac{e-1}{e} \right)$ (2) $\left(\frac{e-1}{e} \right)$
 (3) $\left(\frac{e}{e-1} \right)$ (4) $\frac{1}{e}$
2. In Young's double slit experiment, the ratio of path difference corresponding to third maxima

obtained in air to the third minima obtained in water is $\left(\mu \text{ of water} = \frac{4}{3} \right)$

- (1) $\frac{4}{3}$ (2) $\frac{4}{5}$
 (3) $\frac{3}{5}$ (4) $\frac{8}{5}$

3. An unpolarised beam of light falls on a system of four polaroids, which are arranged consecutively in a line such that each polaroid is turned through the angle 45° with respect to the preceding one. The percentage of incident intensity stopped by the system is

- (1) 6.25 % (2) 93.75 %
 (3) 25 % (4) 73.25 %

4. In a vertical spring mass system if stretching in spring at equilibrium near earth surface is x_0 then the extension in spring at a height 1600 km from earth surface is (radius of earth $R = 6400$ km)

(1) $\frac{5}{16}x_0$ (2) $\frac{5x_0}{4}$
 (3) $\frac{16x_0}{25}$ (4) $\frac{x_0}{4}$

5. A block of mass 5 kg is hanging over an ideal pulley through a string (ideal). The other end of the string is pulled by a constant force F such that the kinetic energy of the block increases by 5 J in 1s. If the block is pulled from rest then (take $g = 10 \text{ m/s}^2$)

- (1) Tension in the string is 50 N
 (2) Work done by F is 5 J in 1s
 (3) Work done by gravity on block in 1s is -5J
 (4) Tension in the string is 57.07 N

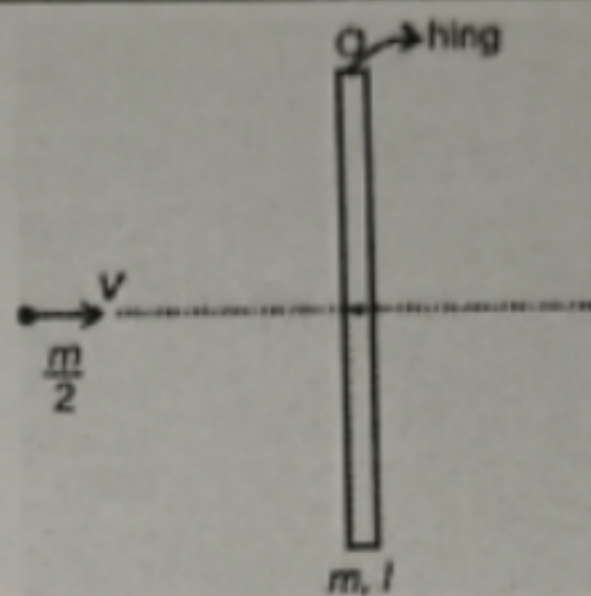
6. Four particles A, B, C and D are situated at the corners of a square of side d . They start moving with same speed v along the sides of square in same sense. Then their relative velocity of approach after $t = \frac{d}{2v}$ is

(1) $\frac{v}{\sqrt{2}}$ (2) $\sqrt{2}v$
 (3) $\frac{v}{2}$ (4) 0

7. A solid cylinder of radius R is kept at rest on a smooth horizontal surface. A horizontal force is applied to move the cylinder under pure rolling. Then height of force from horizontal surface is

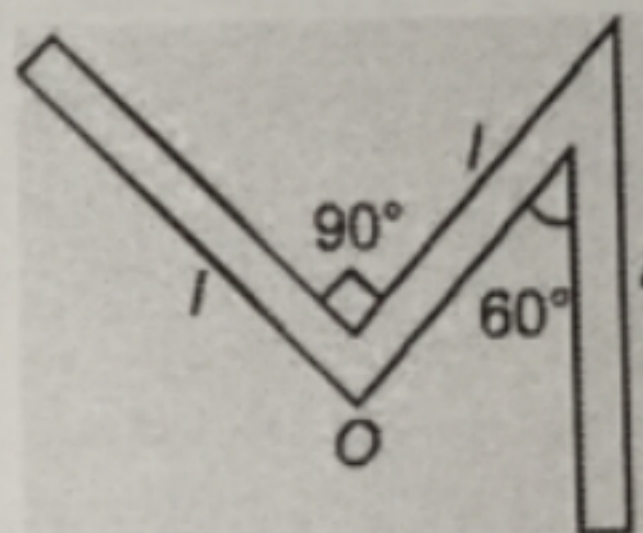
(1) R (2) $\frac{R}{2}$
 (3) $\frac{3R}{2}$ (4) $2R$

8. A uniform rod of mass m and length l is hanging vertically at one end as shown in figure. A bullet of mass $\frac{m}{2}$ fired with velocity v strikes the rod in the middle and sticks to it then angular velocity of rod about hing just after being hit is



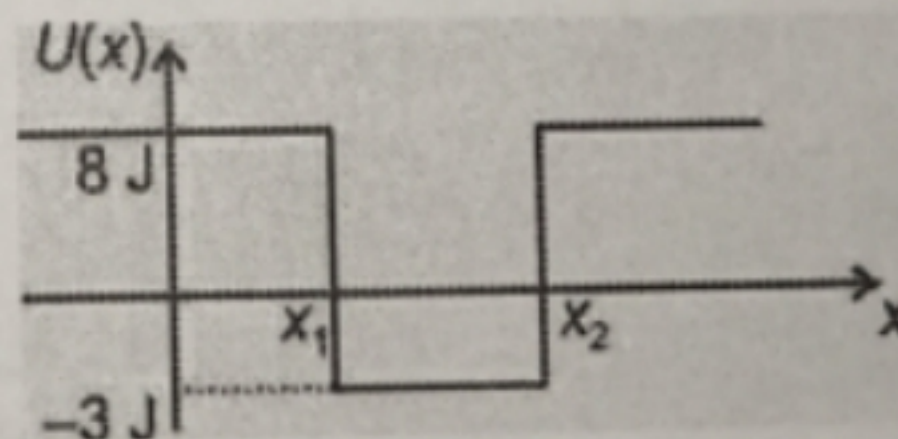
(1) $\frac{2v}{3l}$ (2) $\frac{6v}{11l}$
 (3) $\frac{3v}{7l}$ (4) $\frac{4v}{3l}$

9. A thin rod of length $3l$ and mass $3m$ is bent as shown in figure. Then moment of inertia of the given structure about an axis passing through point O and perpendicular to the plane containing rod is



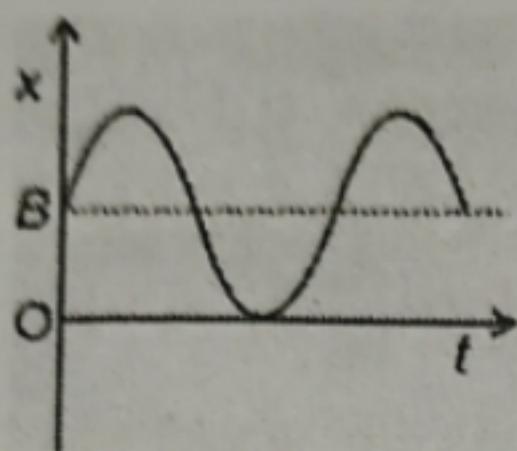
(1) $\frac{ml^2}{3}$ (2) ml^2
 (3) $\frac{17}{12}ml^2$ (4) $\frac{3}{2}ml^2$

10. The potential energy function in one dimension is given as shown in figure. If total energy of the particle is 5J. Then in the region from x_1 to x_2 , the value of its kinetic energy will be



(1) 8 J (2) 11 J
 (3) 5 J (4) 0 J

19. For a particle executing S.H.M with amplitude A , the position varies with time according to the following graph. The corresponding position equation with time is given by

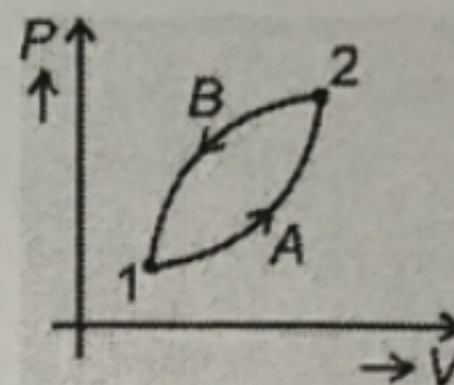


- (1) $x = A \sin \omega t$
 (2) $x = A + B \sin \omega t$
 (3) $x = B + A \cos \omega t$
 (4) $x = B + A \sin \omega t$
20. A particle is executing S.H.M along x -axis with origin as the mean position. If velocity v of the particle is related with position x as $9v^2 = 36 - x^2$ then time period of the oscillation will be
- (1) 3s (2) 3π s
 (3) 6s (4) 6π s
21. Equal mole of nitrogen and helium are mixed. The ratio of speed of sound in the mixture to that in nitrogen is
- (1) $\frac{\sqrt{5}}{16}$ (2) $\sqrt{\frac{15}{8}}$
 (3) $\frac{2}{\sqrt{5}}$ (4) $\frac{7}{5}$
22. A gas is contained in a vessel of volume V_0 at a pressure P_0 . If the gas is to be pumped out by a suction pump of stroke volume V then number of moles of gas remained in the vessel after two strokes is (where, R is gas constant, T is constant temperature of gas)

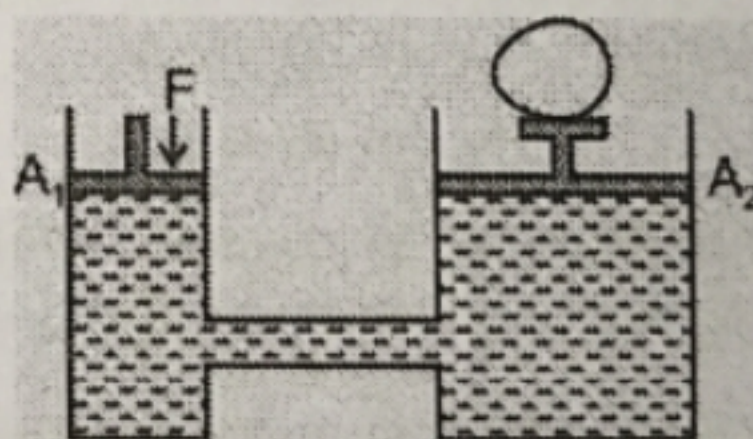
- (1) $\frac{P_0 V_0^3}{RT(V_0 + V)^2}$ (2) $\frac{P_0 V_0^2}{RT(V_0 + V)^2}$
 (3) $\frac{P_0 V_0^3}{RT(V_0 + V)^3}$ (4) $\frac{P_0 V_0^2}{RT(V_0 + V)^3}$

23. If P is pressure, V is volume, K is Boltzmann constant and T is absolute temperature of gas, then the quantity $\frac{PV}{KT}$ gives

- (1) Molecular mass of the gas
 (2) Kinetic energy of the gas
 (3) Number of molecules of the gas
 (4) Number of moles of the gas
24. In the given figure if ΔU_1 and ΔU_2 be the change in internal energy in processes A and B respectively then



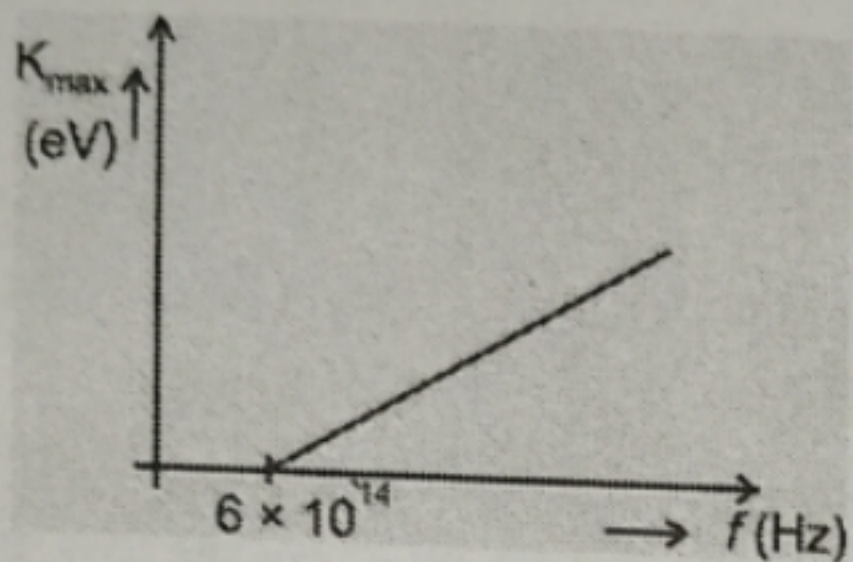
- (1) $\Delta U_1 + \Delta U_2 = 0$
 (2) Net heat will be rejected by the system in process $A + B$
 (3) Total work done by the system is positive in the process $A + B$
 (4) Both (1) and (2)
25. The temperature of a body falls from 52°C to 44°C in 4 minutes when placed in a surrounding of constant temperature 18°C . The time taken for the temperature of the body to become 40°C is
- (1) 5 min (2) 2.5 min
 (3) 4 min (4) 2 min
26. A hydraulic lift used to lift a stone of mass 1000 kg is as shown in figure. If $A_1 = 10 \text{ cm}^2$ and $A_2 = 2 \text{ m}^2$ then the minimum force F required to lift the stone is (take $g = 10 \text{ m/s}^2$)



- (1) $5 \times 10^3 \text{ N}$ (2) $5 \times 10^4 \text{ N}$
 (3) 5 N (4) 50 N
27. 125 identical and nearly spherical rain drops are falling through atmosphere vertically with a terminal speed of 2 m/s . If these drops coalesce to form a big drop, then terminal speed of the big drop is

- (1) 5 m/s (2) 50 m/s
 (3) 25 m/s (4) 125 m/s

28. The following graph shows the variation of maximum kinetic energy (K_{max}) of the photoelectrons emitted versus frequency (f) of incident radiation in an experiment of photoelectric effect. The stopping potential of the surface for the incident light of wavelength 4133.33\AA is nearly



- (1) 1.0 V (2) 0.5 V
 (3) 3.0 V (4) 2.5 V

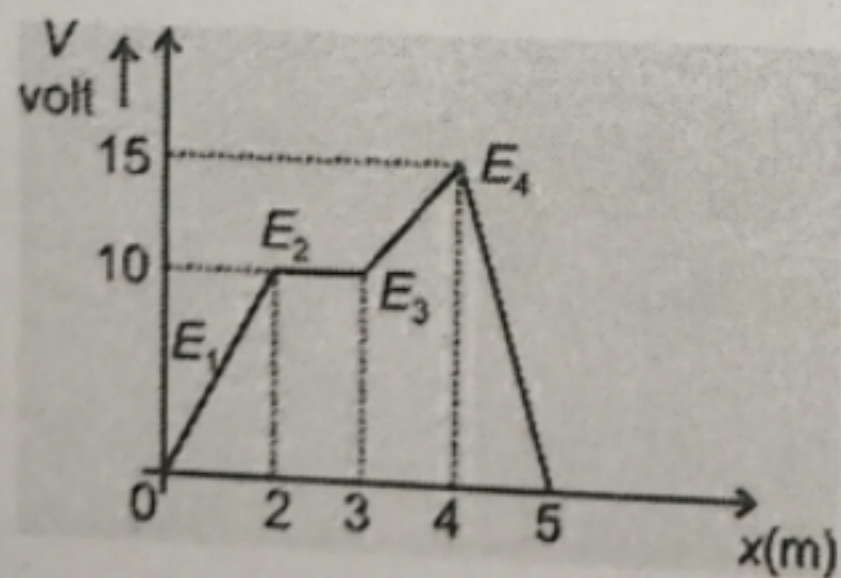
29. In a series LCR circuit with $R = 10\ \Omega$, $L = 1\text{H}$ and $C = 10.1\ \mu\text{F}$ connected across a variable frequency 220 V ac supply then the resonant frequency and the corresponding average power transferred to the circuit in one complete cycle at resonant frequency will be

- (1) 50 Hz, 4840 W (2) 6 Hz, 4800 W
 (3) 50 Hz, 2000 W (4) 60 Hz, 4000 W

30. Two hollow concentric spheres have radii a and b ($a < b$) carrying charges $+Q$ and $-Q$ respectively. The potential difference between their surfaces is 5 V. Now the outer sphere is given a charge of $-2Q$ then the potential difference between their surfaces will now be

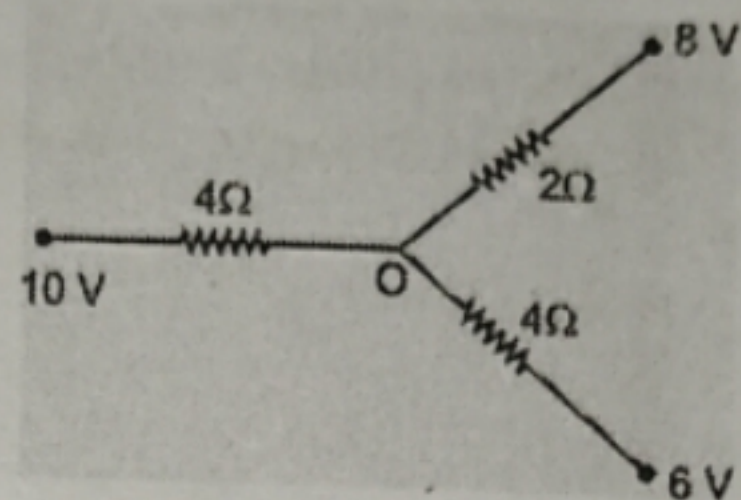
- (1) 10 V (2) 2.5 V
 (3) 5 V (4) 20 V

31. Electric potential (V) in a region varies with x coordinate as shown in figure. If E_1 , E_2 , E_3 , and E_4 are magnitude of fields for the shown regions then



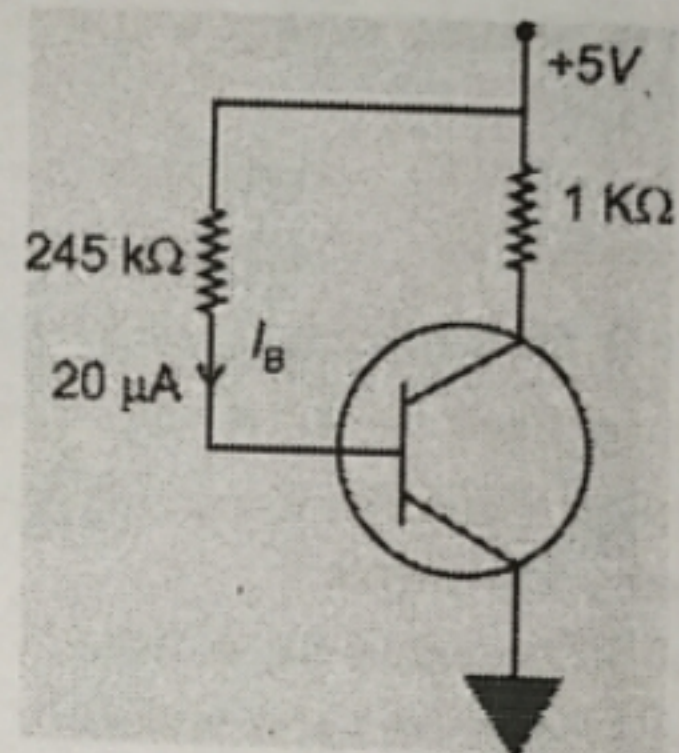
- (1) $E_1 > E_2 > E_3 > E_4$ (2) $E_4 > E_3 > E_2 > E_1$
 (3) $E_4 > E_3 = E_2 > E_1$ (4) $E_4 > E_3 = E_1 > E_2$

32. A part of the circuit is as shown in figure. The current in $2\ \Omega$ branch is



- (1) 1 A (2) 4 A
 (3) 0.5 A (4) 0 A

33. In the following n-p-n transistor amplifier circuit $\beta = 100$. The V_{CE} and V_{BE} of the transistor is

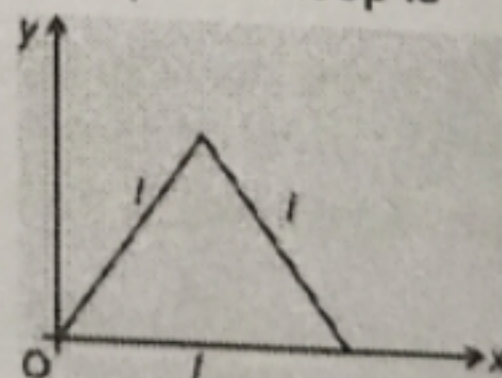


- (1) 3V, 0.1V (2) 0.1V, 3V
 (3) 1V, 3V (4) 1V, 0.1V

34. A parallel plate capacitor of plate area A and plate separation d is filled with a dielectric of dielectric constant $K = 2$ and thickness $d/3$. The effective capacitance of the capacitor will be

- (1) $6 \frac{A\epsilon_0}{d}$ (2) $3 \frac{A\epsilon_0}{2d}$
 (3) $\frac{6 A\epsilon_0}{5 d}$ (4) $\frac{5 A\epsilon_0}{3 d}$

35. A conducting triangular frame is placed in $x - y$ plane as shown in figure. If magnetic field B is varying w.r.t position x as $B = 2x^2$ tesla, then emf. Induced (in volts) in the loop is



(1) $\sqrt{3}l^3$

(2) $\frac{\sqrt{3}}{2}l^2$

(3) $\sqrt{3}l^2$

(4) Zero

36. Apparent dips in two planes normal to each other are 30° and 45° respectively. True dip at that place is

(1) $\tan^{-1}(\sqrt{2})$

(2) $\tan^{-1}\left(\frac{1}{\sqrt{2}}\right)$

(3) $\tan^{-1}(2)$

(4) $\tan^{-1}\left(\frac{1}{2}\right)$

37. A hydrogen like atom of atomic number z is in an excited state of quantum number $2n$. It can emit a photon of maximum energy 204 eV. If it makes a transition in quantum state n , a photon of energy 40.8 eV is emitted the value of n will be

(1) 1

(2) 2

(3) 3

(4) 4

38. A particle is moving along x -axis whose equation of motion is given by $x = \alpha + \beta e^{-kt}$, where α , β and k are +ve constant, $\alpha > \beta$, t is time consider the following statements

(I) x and v are positive for all time

(II) x and a (acceleration) are positive for all time

(1) Only I is correct

(2) Only II is correct

(3) Both I and II are correct

(4) Neither I nor II is correct

39. A particle is projected at an angle 60° with horizontal with speed 10 m/s. The time after which the speed of the particle remains $\frac{1}{\sqrt{3}}$ times of its initial speed is

(1) $5\sqrt{3} s$

(2) $\frac{2}{\sqrt{3}} s$

(3) $\frac{1}{\sqrt{3}} s$

(4) $10\sqrt{3} s$

40. A parallel plate capacitor with plate area A and plate separation d is charged by a current of 5 mA. The displacement current through a plane surface of area $\frac{2A}{3}$ parallel to the plates and drawn symmetrically between the plates, is

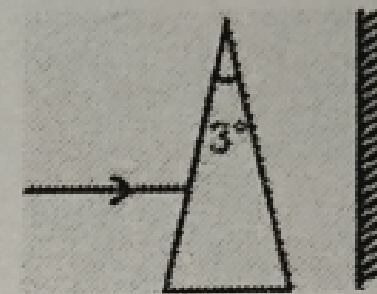
(1) 5 mA

(2) 2.5 mA

(3) $\frac{10}{3}$ mA

(4) $\frac{5}{3}$ mA

41. Consider a thin prism of angle 3° and refractive index 1.5. A horizontal incident ray on prism is shown in figure. If a plane mirror is vertically placed close to the prism then total deviation produced in the incident ray is



(1) 178.5

(2) 177°

(3) 180°

(4) 180.5°

42. A telescope has an objective of focal length 150 cm and magnifying power 30. The distance between two lenses in normal adjustment will be

(1) 95 cm

(2) 145 cm

(3) 125 cm

(4) 155 cm

43. A cell is balanced on a length of 150 cm of a potentiometer wire. Now a resistance of 5Ω is connected in parallel to the cell, then the balance point is obtained at 100 cm. The value of internal resistance of cell is

(1) 2.5Ω

(2) 20Ω

(3) 10Ω

(4) 25Ω

44. When a 20Ω resistor is connected in parallel with a moving coil galvanometer then its deflection reduces from 75 divisions to 25 division then the resistance of galvanometer is

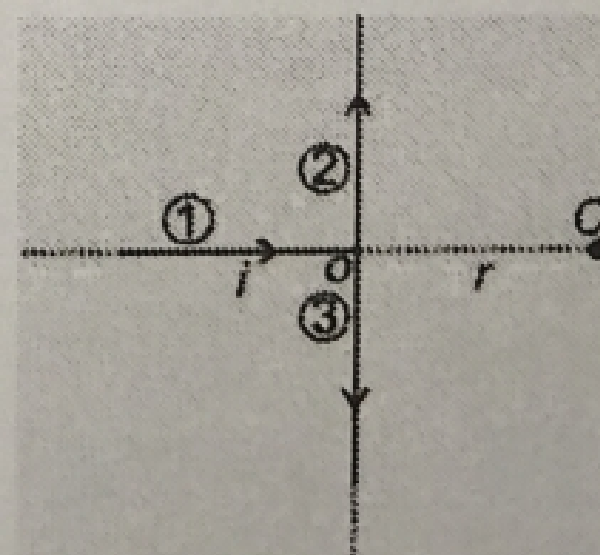
(1) 10Ω

(2) 20Ω

(3) 40Ω

(4) 60Ω

45. Three infinite wires are joined at O as shown in figure. If wire (1) carries a current i as shown in figure then net magnetic field at point C will be



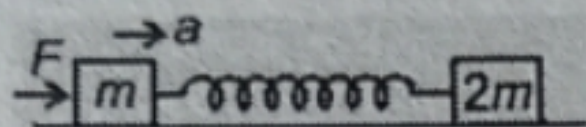
$$(1) \frac{\mu_0 i}{2\pi r}$$

$$(2) \frac{\mu_0 i}{4\pi r}$$

$$(3) \frac{\mu_0 i}{8\pi r}$$

(4) Zero

46. Two blocks of mass m and $2m$ connected with light spring are placed on the smooth horizontal surface. A force F is applied on block of mass m as shown in the figure. If acceleration of block of mass m is a then the acceleration of block of mass $2m$ will be



$$(1) \frac{F}{2m}$$

$$(2) \frac{F}{3m}$$

(3) a

$$(4) \frac{F - ma}{2m}$$

47. Satellites orbiting the earth have finite life and sometimes debris of satellite fall to the earth. This is because

- (1) The solar cell and batteries in satellites run out
(2) The laws of gravitation predict a trajectory spiralling inwards

(3) Of the viscous forces causing the speed of satellite and hence height to gradually decrease

(4) Of collision with other satellites

48. A capacitor of capacitance C is charged to a potential difference V from a cell and then disconnected from it. A charge $+Q$ is now given to its plate. The potential difference across the capacitor is now

$$(1) V$$

$$(2) V + \frac{Q}{C}$$

$$(3) V + \frac{Q}{2C}$$

$$(4) V - \frac{Q}{C}, \text{ if } Q < CV$$

49. A hydrogen atom is paramagnetic. A hydrogen molecule is

(1) Diamagnetic

(2) Paramagnetic

(3) Ferromagnetic

(4) Depends on temperature

50. A coil of inductance 0.4 mH connected to a capacitor 400 pF . To what wavelength, is this circuit tuned?

$$(1) 733.6 \text{ m}$$

$$(2) 743.6 \text{ m}$$

$$(3) 753.6 \text{ m}$$

$$(4) 763.6 \text{ m}$$

CHEMISTRY

[SECTION-A]

51. Maximum number of atoms is present in

$$(1) 0.1 \text{ mol NaOH} \quad (2) 0.2 \text{ mol C}_6\text{H}_{12}\text{O}_6$$

$$(3) 0.3 \text{ mol Na}_2\text{C}_2\text{O}_4 \quad (4) 0.1 \text{ mol H}_2\text{O}$$

52. Molarity of an aqueous solution containing 12 g urea in 500 ml solution is

$$(1) 0.2 \text{ M} \quad (2) 0.3 \text{ M}$$

$$(3) 0.6 \text{ M} \quad (4) 0.4 \text{ M}$$

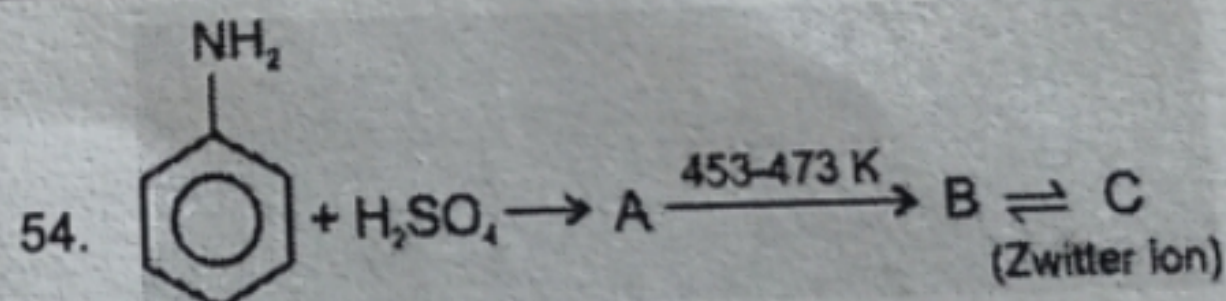
53. Number of electrons in copper atom for which azimuthal quantum number (l) is 2 , is

$$(1) 6$$

$$(2) 9$$

$$(3) 10$$

$$(4) 7$$



Choose the incorrect option based on above reaction

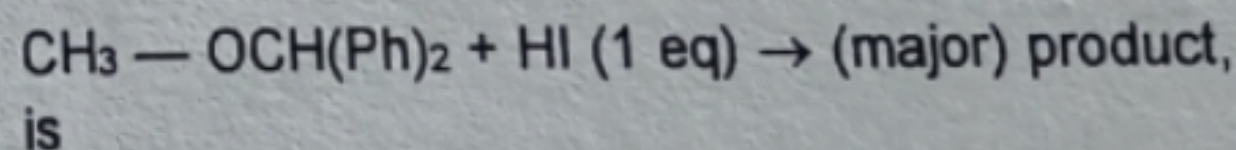
(1) A is anilinium hydrogensulphate

(2) B is sulphanilic acid

(3) A has electron withdrawing group attached with ring

(4) C has $-\text{NO}_2$ group attached with ring

55. The major organic product in the reaction



(1) CH_3I and $(\text{C}_6\text{H}_5)_2\text{CHI}$

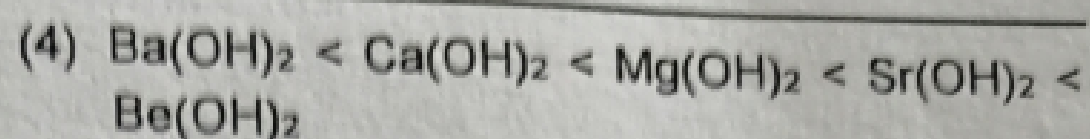
(2) CH_3I and $(\text{C}_6\text{H}_5)_2\text{CH}(\text{OH})$

(3) CH_3OH and $(\text{C}_6\text{H}_5)_2\text{CHI}$

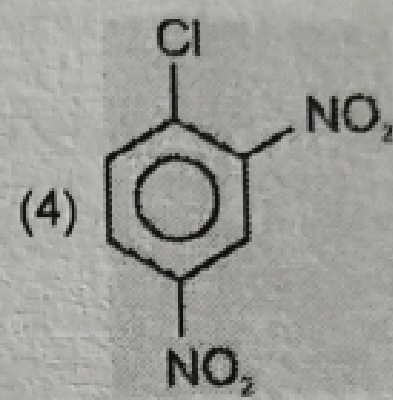
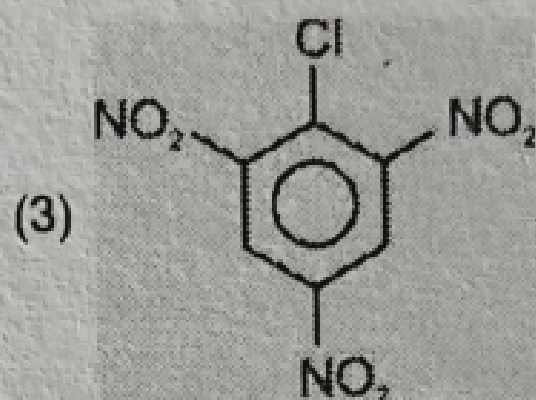
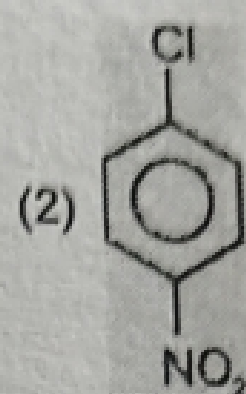
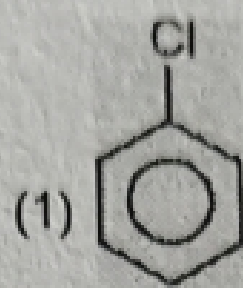
(4) CH_3OH and $(\text{C}_6\text{H}_5)_2\text{CH}(\text{OH})$

56. de-Broglie wavelength of a particle of mass of 6.62×10^{-22} kg moving with 1 m/s speed is
(Planck's constant is 6.62×10^{-34} Js)
 (1) 0.1 Å (2) 0.01 Å
 (3) 0.2 Å (4) 0.02 Å
57. Element of highest first negative electron gain enthalpy is
 (1) N (2) O
 (3) F (4) Cl
58. Glucose on reaction with HNO_3 forms
 (1) Gluconic acid (2) Saccharic acid
 (3) n-hexane (4) Gluconaldehyde
59. Pair of compounds, which cannot be distinguished by iodoform test is
 (1) CH_3OH and $\text{CH}_3\text{CH}_2\text{OH}$
 (2) $\text{CH}_3\text{CH}_2\text{OH}$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
 (3) $\text{CH}_3\text{CH}_2\text{OH}$ and CH_3COCH_3
 (4) CH_3COCH_3 and $\text{PhCOCH}_2\text{CH}_3$
60. Incorrect statement about AlCl_3 is
 (1) It is an electron deficient molecule.
 (2) It achieves stability by forming a dimer
 (3) It exists as $[\text{Al}(\text{H}_2\text{O})_6]^{3+}$ ion in its acidified aqueous solution.
 (4) The chloride bridge is a three-centre two electron bond.
61. Species having sp^3d^2 hybridization around central atom is
 (1) I_3^- (2) XeF_2
 (3) SF_6 (4) XeO_3
62. Incorrect match of polymers among the following is
 (1) Polyamides \rightarrow Nylon 6, 6
 (2) Phenol formaldehyde \rightarrow Bakelite
 (3) Synthetic rubber \rightarrow Buna-N
 (4) Biodegradable \rightarrow Dacron
63. Non-polar molecule among the following is
 (1) CH_4 (2) CH_3F
 (3) CH_3Br (4) PF_3Cl_2
64. During the conversion of N_2^+ from N_2 , electron will be lost from
 (1) $\pi 2p_x$ (2) $\sigma 2p_z$
 (3) $\pi 2p_y$ (4) $\sigma 2p_x$
65. C-O bond length in CO_3^{2-} ion is
 (1) Less than that of C-O bond length in CO_2
 (2) Less than that of C-O bond length in CO
 (3) Equal to C-O bond length in CO_2
 (4) More than that of C-O bond length in CO
66. In which of the following pair of molecules London forces are the dominating intermolecular forces of attraction?
 (1) HCl and HCl (2) HCl and H_2O
 (3) N_2 and N_2 (4) NH_3 and HCl
67. Gas which can effuse out from a 8L container most rapidly under identical conditions of pressure and temperature is
 (1) He (2) CO_2
 (3) N_2 (4) O_2
68. If equal masses of three gases H_2 , He and Ne are mixed in a 6L container then fraction of pressure contributed by H_2 is
(Ne : 20 g mol^{-1})
 (1) $\frac{1}{2}$ (2) $\frac{1}{8}$
 (3) $\frac{1}{4}$ (4) $\frac{5}{8}$
69. Reaction for which ΔH is less than ΔU at 27°C is
 (1) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
 (2) $\text{PCl}_5(\text{g}) \rightarrow \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$
 (3) $\text{CaCO}_3(\text{s}) \rightarrow \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$
 (4) $\text{NH}_4\text{HS}(\text{s}) \rightarrow \text{NH}_3(\text{g}) + \text{H}_2\text{S}(\text{g})$
70. If 1 mol of an ideal gas at 300K expanded reversibly from 1 atm pressure and 5L volume to 0.2 atm pressure and 25 L volume then work done involved in the process is
 (1) $-200 \text{ Rln}2$ (2) $-300 \text{ Rln}2$
 (3) $-300 \text{ Rln}5$ (4) $-200 \text{ Rln}5$
71. Select the process in which entropy change is positive
 (1) Boiling of egg
 (2) Stretching of rubber band
 (3) Formation of $\text{NH}_3(\text{g})$ by using $\text{N}_2(\text{g})$ and $\text{H}_2(\text{g})$
 (4) Freezing of molten aluminium

72. pH of aqueous solution 0.1N of NaOH is
 (1) 1 (2) 10
 (3) 11 (4) 13
73. Select the pair of solution which cannot act as buffer.
 (1) NaOH(aq) and CH₃COOH(aq)
 (2) CH₃COONa(aq) and CH₃COOH(aq)
 (3) NH₄Cl(aq) and NH₄OH(aq)
 (4) NH₄NO₃(aq) and HNO₃(aq)
74. If solubility product of Zn(OH)₂ is 4×10^{-15} then concentration of [OH⁻] in saturated solution of Zn(OH)₂ will be
 (1) 10^{-5} mol L⁻¹ (2) 2×10^{-5} mol L⁻¹
 (3) 4×10^{-5} mol L⁻¹ (4) 3×10^{-5} mol L⁻¹
75. Standard electrode potential of following reaction is
 $6\text{Fe}^{2+}(\text{aq}) + \text{Cr}_2\text{O}_7^{2-}(\text{aq}) + 14\text{H}^+(\text{aq}) \rightarrow 6\text{Fe}^{3+} + 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$
 $(E_{\text{Fe}^{3+}/\text{Fe}^{2+}}^{\circ} = 0.77 \text{ V and } E_{\text{Cr}_2\text{O}_7^{2-}/\text{Cr}^{3+}}^{\circ} = 1.33 \text{ V})$
 (1) 0.26 V (2) 0.56 V
 (3) 1.22 V (4) 1.12 V
76. Electron precise hydride among the following is
 (1) CH₄ (2) PH₃
 (3) NaH (4) B₂H₆
77. Percentage strength of solution of 15 V H₂O₂ is
 (1) 4.55 (2) 9.1
 (3) 2.75 (4) 2.05
78. Alkali metal of highest density among the following is
 (1) Na (2) Li
 (3) K (4) Cs
79. Correct order of solubility of hydroxides of alkaline earth metals is
 (1) Be(OH)₂ < Mg(OH)₂ < Ca(OH)₂ < Sr(OH)₂ < Ba(OH)₂
 (2) Be(OH)₂ < Mg(OH)₂ < Ca(OH)₂ < Ba(OH)₂ < Sr(OH)₂
 (3) Ba(OH)₂ < Sr(OH)₂ < Ca(OH)₂ < Mg(OH)₂ < Be(OH)₂



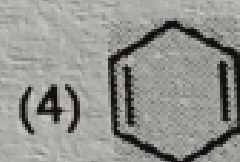
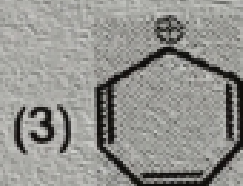
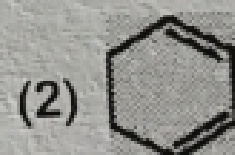
80. Among the following which is most susceptible to nucleophilic substitution reaction?



81. Which of the following is an example of antiseptic?

- (1) Tincture of iodine (2) Norethindrone
 (3) Chloramphenicol (4) Salvarsan

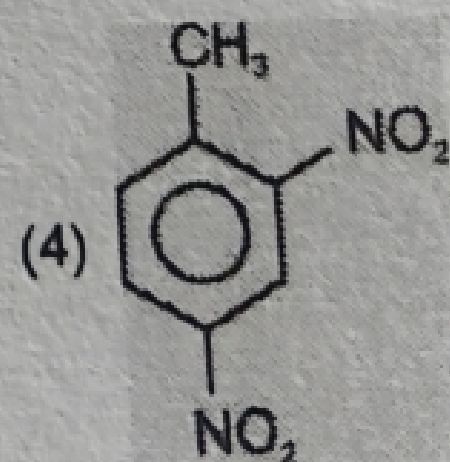
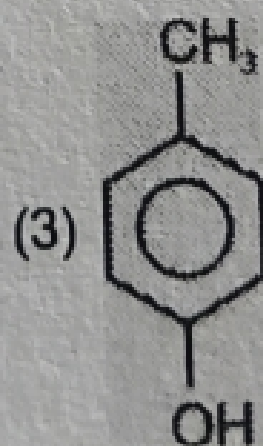
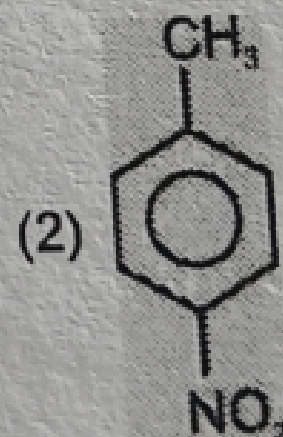
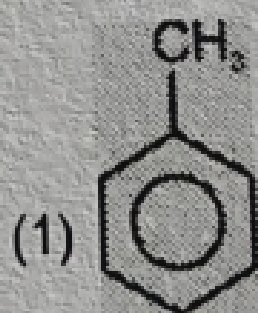
82. Aromatic species is

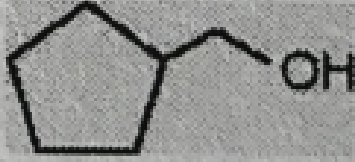
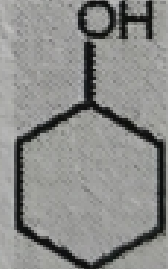
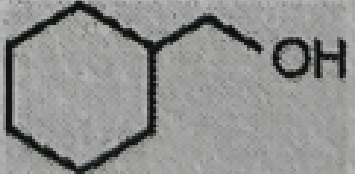
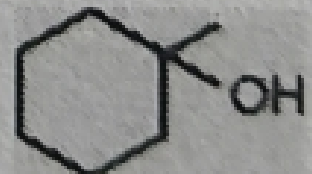


83. Alkanes of highest boiling point among the following is

- (1) Pentane (2) 2-methyl butane
 (3) Butane (4) 2-methyl propane

84. Which will give fastest electrophilic aromatic substitution among the following?



85. Which of the following solvents is a carcinogen and was earlier used as solvent for dry cleaning?
 +y (1) H_2O (2) $Cl_2C = CCl_2$
 (3) Liquid CO_2 (4) H_2O_2
86. Correct relation of edge length and atomic radius of atom in bcc unit cell is
 (1) $a = \sqrt{2}r$ (2) $\sqrt{3}a = 4r$
 (3) $a = 2\sqrt{2}r$ (4) $a = 2r$
87. The incorrect statement from the following is
 (1) O_2 , Cu^{2+} , Fe^{3+} and Cr^{3+} are paramagnetic in nature.
 (2) NaCl, KCl and CsCl show schottky defect
 (3) Packing efficiency of FCC unit cell is 68%
 (4) Diamond and ZnS have similar lattices
88. Number of moles of $CO_2(g)$ dissolved in 100 mol of water at 298 K is
 (Pressure of $CO_2 = 0.5$ bar, $K_H(CO_2) = 1.6 \times 10^3$ bar)
 (1) 0.2 mol (2) 0.3 mol
 (3) 0.02 mol (4) 0.03 mol
89. The charge required to reduce 0.2 mol nitrobenzene into aniline is
 (1) 0.6 F (2) 0.2 F
 (3) 1.2 F (4) 1.6 F
90. Time required (in hr) to decompose a reactant upto 93.75% in first order reaction is
 ($t_{1/2} = 3$ hr)
 (1) 9 (2) 6
 (3) 12 (4) 15
91. Select the positive colloid among the following
 - | (1) Gold sol (2) Haemoglobin
 (3) Congo red sols (4) Gelatin sol
92. Slag formed during the extraction of copper from chalcopyrite is
 (1) CaO (2) $CaSiO_3$
 (3) $Ca_3(PO_4)_2$ (4) $FeSiO_3$
93. Actinoids element which shows maximum number of oxidation states is
 (1) Pa (2) Pu
 (3) Es (4) Md
94. Outer orbital complex is formed by
 (1) $[Ni(CN)_4]^{2-}$ (2) $[Co(en)_3]Cl_3$
 (3) $[Ni(NH_3)_6]Cl_2$ (4) $[Co(NH_3)_6]Cl_3$
95. Match the following
- | | Column I | Column II |
|-------|-----------------------|--------------------------------|
| (i) | EDTA | a. Electroplating with gold |
| (ii) | DMG | b. Black and white photography |
| (iii) | $[Au(CN)_2]^-$ | c. Lead poisoning |
| (iv) | $[Ag(S_2O_3)_2]^{3-}$ | d. Detection of Ni^{2+} |
- | | (i) | (ii) | (iii) | (iv) |
|-----|-----|------|-------|------|
| (1) | d | b | a | c |
| (2) | d | c | a | b |
| (3) | c | b | a | d |
| (4) | c | d | a | b |
96. Which among the following is/are representative element(s)?
 (1) Ba (2) Sc
 (3) In (4) Both (1) and (3)
97. Which among the following is acidic in nature and blue in colour?
 (1) N_2O_5 (2) N_2O_4
 (3) N_2O_3 (4) N_2O
98. Which of the following statement is incorrect?
 (1) Higher the gold number, lower the protecting power of colloid
 (2) Coagulating power and coagulation value is inversely related
 (3) Gelatin is negatively charged sol
 (4) In milk, water is dispersed in liquid fat
99. Which among the following will react at fastest rate with $ZnCl_2/HCl$?
- | | |
|---|---|
| (1)  | (2)  |
| (3)  | (4)  |
100. The numbers of mole of phenylhydrazine needed to form fructosazone when react with fructose is
 (1) 1 (2) 2
 (3) 3 (4) 4