1. The electric field intensity at point P due to point charge q kept at point Q is $24\,\mathrm{NC}^{-1}$ and the electric potential at point P due to same charge is $12\,\mathrm{JC}^{-1}$. The order of magnitude of charge q is

(a) $10^{-6}\,\mathrm{C}$ (b) $10^{-7}\,\mathrm{C}$ (c) $10^{-10}\,\mathrm{C}$ (d) $10^{-9}\,\mathrm{C}$

2. A small sphere of radius r_1 and charge q_1 is enclosed by a spherical shell of radius r_2 and charge q_2 If q_1 is positive, then

(a) Charge will flow from the sphere to shell.

(b) Charge will flow from the shell to sphere

(c) Charge flow will depend on the magnitude q_2

(d) Charge flow will depend on the magnitude of charge q_1

3. Metallic sphere of radius R is charged to potential V. then charge q is proportional to

(a) V (b) R

(c) Both V and R (d) None of these

4. In the above que., the charge on capacitors C_1 and C_4 are

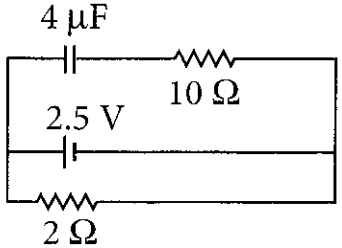
(a) $4\times10^{-3}\mathrm{C},12\times10^{-3}\mathrm{C}$

(b) $6\times10^{-3}\mathrm{C},12\times10^{-3}\mathrm{C}$

(c) $2\times10^{-3}\mathrm{C},4\times10^{-3}\mathrm{C}$

(d) $3\times10^{-3}\mathrm{C},2\times10^{-3}\mathrm{C}$

5. A capacitor of $4\,\mu\mathrm{F}$ is connected as shown in the circuit. The internal resistance of the battery is $0.5\,\Omega$ The amount of charge on the capacitor plates will be



(a) 0 (b) $4\,\mu\mathrm{C}$ (c) $16\,\mu\mathrm{C}$ (d) $8\,\mu\mathrm{C}$

6. Two identical balls having like charges and placed at certain distance apart repel each other with a certain force. They are brought in contact and then moved apart to a distance equal to half their initial separation. The force of repulsion between them increases 4.5 times in comparison with the initial value. The ratio of the initial charges of the balls is-

(a) 2 (b) 3 (c) 4 (d) 6

7. When a body is connected to the earth, then electrons from the earth, flow into the body. It means that the body is-

(a) Uncharged (b) An insulator

(c) Positively charged (d) Negatively charged

8. In a region of constant potential.

(a) The electric field is potential

(b) The electric field is zero.

(c) There can be no charge inside the region.

(d) Both (b) and (c) are correct

9. Two conducting spheres of radii r_1 and r_2 are equally charged. The ratio of their potential is.

(a) $\frac{r_1}{r_2}$ (b) $\frac{r_2^2}{r_1^2}$ (c) $\frac{r_2}{r_1}$ (d) $\frac{r_1^2}{r_2^2}$

10. The potential at a point due to a charge of $5\times10^{-7}\,\mathrm{C}$ located 10 cm away is.

(a) $3.5\times10^{5}\,\mathrm{V}$ (b) $3.5\times10^{4}\,\mathrm{V}$

(c) $4.5\times10^{4}\,\mathrm{V}$ (d) $4.5\times10^{5}\,\mathrm{V}$

11. The electric field and the potential of an electric dipole vary with distance r as.

(a) $\frac{1}{r}$ and $\frac{1}{r^2}$ (b) $\frac{1}{r^2}$ and $\frac{1}{r}$

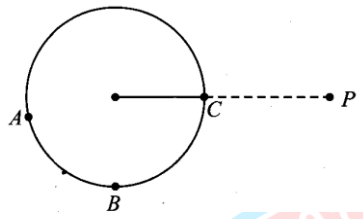
(c) $\frac{1}{r^2}$ and $\frac{1}{r^3}$ (d) $\frac{1}{r^3}$ and $\frac{1}{r^2}$

12. Consider a uniform electric field in the z – direction. The potential is a constant

(a) For any x for a given z (b) For any y for a given z

(c) On the x-y plane for a given z (d) All of these

13. A hollow conducting sphere is placed in an electric field produced by a point charge placed at P as shown in figure. Let $V_{A,}$ $V_{B,}$ V_C be the potential at point A, B and C respectively, then



(a) $V_C > V_B$ (b) $V_A > V_B$

(c) $V_B > V_C$ (d) $V_A = V_C$

14. Choose the correct statement.

(a) Polar molecules have permanent electric dipole moment.

(b) CO_2 Molecule is a polar molecule.

(c) H_2O is a non – polar molecule.

(d) The dipole field at large distances falls of as $\frac{1}{r^2}$

15. A capacitor is made of two circular plates of radius R each, separated by a distance d << R . The capacitor is connected to a constant voltage. A thin conducting disc of radius r<< R and thickness t <<r is placed at the centre of the bottome plate. Find the minimum voltage required to lift the disc if the mass of the disc is m.

(a) $\frac{\sqrt{mgd}}{\pi\varepsilon_0 r^2}$ (b) $\sqrt{\frac{mgd}{\pi\varepsilon_0 r}}$ (c) $\sqrt{\frac{mgd^2}{\pi\varepsilon_0 r^2}}$ (d) $\sqrt{\frac{mgd}{\pi\varepsilon_0 r^2}}$

16. A parallel plate capacitor has two square plates with equal and opposite charges. The surface charge desities on the plates are + σ and $-\sigma$ respectively. In the region between the plates the magnitude of the electric field is.

(a) $\frac{\sigma}{2\varepsilon_0}$ (b) $\frac{\sigma}{\varepsilon_0}$ (c) 0 (d) None of these

17. Tow identical capacitors are joined in parallel, charged to a potential V, separated and then connected in series, the positive plate of one is connected to the negative of the other. Which of the following is true?

(a) The charges on the free plated connected together are destroyed.

(b) The energy stored in the system increases.

(c) The potential difference between the free plates is 2 V .

(d) The potential difference remains constant.

18. A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A, the energy stored in the capacitor is.

(a) $\frac{1}{2}\varepsilon_0 E^2$ (b) $\frac{E^2 Ad}{\varepsilon_0}$

(c) $\frac{1}{2}\varepsilon_0 E^2 Ad$ (d) $\varepsilon_0 E^2 Ad$

19. A metallic sphere of radius 18 cm has been given a charge of $5\times10^{-6}C$. The energy of the charged conductor is

(a) $0.2J$ (b) $0.6J$ (c) $1.2J$ (d) $2.4J$

20. Two spherical conductors each of capacity C are charged to potential V and –V. These are then connected by means of a fine wire. The loss of energy is

(a) Zero (b) $\frac{1}{2}CV^2$ (c) CV^2 (d) $2CV^2$

21. A positively charged particle is released from rest in a uniform electric field. The electric potential energy of the charge

(a) Remains a constant because the electric field is uniform.

(b) Increases because the charge moves along the electric field.

(c) Decreases because the charge moves along the electric field.

(d) Decreases because the charge moves opposite to the electric field.

22. Two charges of magnitude 5 nC and $-2\,nC$, one placed at points (2 cm, 0,0) and (x cm, 0,0) in a region of space, where there is no other external field. If the electrostatic potential energy of the system is $-0.5\mu J$. The value of x is.

(a) 20 cm (b) 80 cm (c) 4 cm (d) 16 cm

23. A hollow charged metal sphere has radius r. If the potential difference between its surface and a point at a distance 3r from the centre is V, then the electric field intensity at distance 3r from the centre is -

(a) $\frac{V}{3r}$ (b) $\frac{V}{4r}$ (c) $\frac{V}{6r}$ (d) $\frac{V}{2r}$

24. The magnitude of electric field E in the annular region of a charged cylindrical capacitor

(a) Is the same throughout?

(b) Is higher near the outer cylinder than near the inner cylinder

(c) Varies as $\frac{1}{r^2}$ where r is the distance from the axis

(d) Varies as $\frac{1}{r^2}$ where r is the distance from the axis.

25. In a parallel plate capacitor, the capacity increases if

(a) Area of the plate is decreased

(b) Distance between the plates increases

(c) Area of the plate is increased

(d) Dielectric constant decreases.

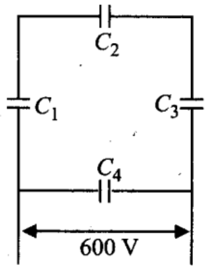
26. A parallel plate capacitor having area A and separated by distance d is filled by copper plate of thickness b. The new capacity is.

(a) $\frac{\varepsilon_0 A}{d-\frac{b}{2}}$ (b) $\frac{\varepsilon_0 A}{2d}$ (c) $\frac{\varepsilon_0 A}{d-b}$ (d) $\frac{\varepsilon_0 A}{d-\frac{b}{2}}$

27. A parallel plate capacitor is made by placing is made by placing n equally spaced plates connected alternatively. If the capacitance between any two adjacent plates is C then the resultant capacitance is.

(a) nC (b) $\frac{C}{n}$ (c) $(n+1)C$ (d) $(n-1)C$

28. A network of four $20\mu F$ capacitors is connected to a 600 V supply as shown in the figure. The equivalent capacitance of the network is.



(a) $30.26\mu F$ (b) $20\mu F$ (c) $26.67\mu F$ (d) $10\mu F$

29. The number of ways one can arrange there identical capacitors to obtain distinct effective capacitances is .

(a) 8 (b) 6 (c) 4 (d) 3

30. Minimum number of capacitors each of $8\mu F$ and 250 V used to make a composite capacitor of $16\mu F$ and 1000 V are.

(a) 8 (b) 32 (c) 16 (d) 24

31. A spherical capacitor has an inner sphere of radius 10 cm and an outer sphere of radius 11 cm. The outer sphere is erthed and the inner sphere is given a charge of $3.4\mu C$. The space between the concentric sphere is filled with a liquid of dielectric constant 28. The capacitance of capacitor is.

(a) 2×10^{-9} F (b) 3.4×10^{-9} F

(c) 4.1×10^{-9} F (d) 5.2×10^{-9} F

32. A cylindrical capacitor has two co – axial cylinders of length 20 cm and radii 1.5 cm and 1.6 cm. The outer cylinder is earthed and inner cylinder is given a charge of $4\mu C$. The capacitance of the system is (neglect end effects)

(a) 2.8×10^{-8} F (b) 4.2×10^{-14} F

(c) 1.7×10^{-10} F (d) 3.4×10^{-12} F

33. A slab of material of dielectric constant K has the same area A sa the plates of a parallel plate capacitor, and has thickness $\left(\frac{3}{4}d\right)$, where d is the separation of the plates. The change in capacitance when the slab is inserted between the plates is

(a) $C = \frac{\varepsilon_0 A}{d}\left(\frac{K+3}{4K}\right)$ (b) $C = \frac{\varepsilon_0 A}{d}\left(\frac{2K}{K+3}\right)$

(c) $C = \frac{\varepsilon_0 A}{d}\left(\frac{2K}{K+3}\right)$ (d) $C = \frac{\varepsilon_0 A}{d}\left(\frac{4K}{K+3}\right)$

34. A parallel plate capacitor is filled by a dielectric whose relative permittivity varies with the applied voltage (V) as $\varepsilon = \alpha V$ where $\alpha = 2\,V^{-1}$. A similar capacitor with no dielectric is charged to $V_o = 78V$. It is then connected to the uncharged capacitor with the dielectric. Final voltage on the capacitor is.

(a) 2 V (b) 3 V (c) 5 V (d) 6 V

35. Example of few solids are given below. Find out the example which is not correctly matched.

(a) Ionic solids - $NaCl, ZnS$

(b) Covalent solids- H_2, I_2

(c) Molecular solids - $H_2O_{(s)}$

(d) Metallic solids - Cu, Sn

36. For the structure given below the site marked as S is a

(a) Tetrahedral void (b) Cubic void

(c) Octahedral void (d) None of these

37. The coordination number of metal crystallizing in a hexagonal close packing is

(a) 12 (b) 4 (c) 8 (d) 6

38. Fe_3Ol (magnetite) is an example of

(a) Normal spinel structure

(b) Inverse spinel structure

(c) Fluorite structure

(d) Antifluorite structure

39. Which of the following crystals does not exhibit Frenkel defect?

(a) AgBr (b) AgCl (c) KBr (d) ZnS

40. Silver halides generally show

(a) Schottky defect

(b) Frenkel defect

(c) Both Frenkel and Schottky defects

(d) Cation excess defect

41. An electron trapped in an anion site in a crystal is called

(a) F – centre (b) Frenkel defect

(c) Schottky defect (d) Interstitial defect

42. P-type semiconductor are formed when Si or Ge are doped with

(a) Group 14 elements (b) Group 15 elements

(c) Group 13 element (d) Group 18 element

43. Which of the following metal oxides is Anti ferromagnetic in nature ?

(a) MnO_2 (b) TiO_2 (c) NO_2 (d) CrO_2

44. Which of the following is an amorphous solid?

(a) Graphite (C) (b) Quartz glass (SiO_2)

(c) Chrome alum (d) Silicon carbide (SiO)

45. Graphite is a good conductor of electricity due to the presence of …….. .

(a) Lone pair of electrons (b) Free valence electrons

(c) Cations (d) Anions

46. The lattice site in a pure crystal cannot be occupied by ……. .

(a) Molecule (b) Ion (c) Electron (d) Atom

47. In which pair most efficient packing is present?

(a) hcp and bcc (b) hcp and ccp

(c) bcc and ccp (d) bcc and simple cubic cell

48. What kind of defects are introduced by doping?
(a) 2 (b) 3 (c) 4 (d) 6

49. Which of the following defects is also known as dislocations defect?
(a) Frenkel defect (b) Schottky defect
(c) Non – stoichiometric defect (d) Simple interstitial defect

50. The major binding force in diamond, silicon and quartz is
(a) Electrostatic force (b) Electrical attractions
(c) Covalent bond force (d) Van der Waals forces

51. In NaCl structure,
(a) All octahedral and tetrahedral sites are occupied
(b) Only octahedral sites are occupied
(c) Only tetrahedral sites are occupied
(d) Neither octahedral nor tetrahedral sites are occupied.

52. If the radius of an octahedral void is r and radius of atoms in close packing is R, the relations between r and R is
(a) $r = 0.414R$ (b) $R = 0.414r$
(c) r = 2R (d) $r - \sqrt{2}R$

53. Which of the following statement is not correct about hexagonal close packing?
(a) In hcp, atoms occupy 74% the available space.
(b) It is AB AB type packing in which third layer is aligned with the first layer.
(c) Be, Mg, Mo etc. are found to have hcp structure.
(d) The coordination number is 6.

54. Total volume of atoms present in a fcc cell of a metal with radius r is
(a) $\frac{12}{3}\pi r^3$ (b) $\frac{16}{3}\pi r^3$ (c) $\frac{20}{3}\pi r^3$ (d) $\frac{24}{3}\pi r^3$

55. The fractions of the total volume occupied by the atoms present in a simple cube is
(a) $\frac{\pi}{4}$ (b) $\frac{\pi}{6}$ (c) $\frac{\pi}{3\sqrt{2}}$ (d) $\frac{\pi}{4\sqrt{2}}$

56. Relationship between atomic radius and the edge length a of a body – centred cubic unit cell is
(a) r = a/2 (b) $r = \sqrt{a/2}$ (c) $r = \frac{\sqrt{3}}{4}a$ (d) $r = \frac{3a}{2}$

57. An element with atomic mass 100 has a bcc structure and edge length 400pm. The density of element is
(a) 564 pm (b) 282 pm (c) 234 pm (d) 538 pm

58. What is the mole fraction of glucose in 10 % w/W glucose solution?
(a) 0.01 (b) 0.02 (c) 0.03 (d) 0.04

59. Among the following substance the lowest vapour pressure is exerted by.
(a) Water (b) Alcohol (c) Ether (d) Mercury

60. What is the molarities of a solution containing 10 g of NaOH in 500 mL of solution?
(a) $0.25 mol\,L^{-1}$ (b) $0.75 mol\,L^{-1}$
(c) $0.5 mol\,L^{-1}$ (d) $1.25 mol\,L^{-1}$

61. What will be the molarity of a solution of glucose in water which is 10 % w/W
(a) $0.01m$ (b) $0.617m$
(c) $0.668m$ (d) $1.623m$

62. How many Na^+ ions are present in 100 mL of $0.25M$ ofNaCl solution
(a) 0.025×10^{23} (b) 1.505×10^{22}
(c) 15×10^{22} (d) 2.5×10^{23}

63. When $1.04g$ of $BaCl_2$ is present in 10^5 g of solution the concentration of solution is
(a) $0.104\,ppm$
(b) $10.4\,\text{ppm}$
(c) 0.0104ppm
(d) 104ppm

64. What will be the mole fraction of ethanol in a sample of spirit containing 85% ethanol by mass
(a) 0.69 (b) 0.82 (c) 0.85 (d) 0.60

65. Concentration terms like mass percentage, ppm, mole fraction and molality do not depend on temperature, However, molarity is a function of temperature because.
(a) Volume depends on temperature and molarity involves volume
(b) Molarity involves non-volatile solute while all other terms involves volatile solute.
(c) Number of moles of solute change with change in temperature.
(d) Molarity is used for polar solvents only.

66. How much oxygen is dissolved in 100 mL water at 298 K if partial pressure of oxygen is 0.5 atm and $K_H = 1.4 \times 10^{-3}$ mol/ L/ atm
(a) $22.4 mg$ (b) $22.4 g$ (c) 2.24g (d) 2.24mg

67. At high altitudes the partial pressure of oxygen is less than that at ground level. This leads to
(a) Low concentrations of oxygen in the blood and tissues
(b) High concentration of oxygen in the blood and tissues
(c) Release of dissolved gases and formation of bubbles of nitrogen in the blood
(d) Thickening of blood and tissues

68. Partial pressure of a solution component is directly proportional to its mole fraction. This is known as
(a) Henry's law (b) Raoult's law
(c) Distribution law (d) Ostwald's dilution law

69. Which of the following solution shows positive deviation from Raoult's law?
(a) Acetone + Aniline (b) Acetone + Ethanol
(c) Water+ Nitric acid (d) Chloroform + Benzene

70. A plant cell shrinks when it is kept in a
(a) Hypotonic solution (b) Hypertonic solution
(c) Isotonic solution (d) Pure water

71. Which of the following contains three pairs of electrons in valence shell?
(a) Carbocations (b) Carbanions
(c) Nucleophiles (d) Carbenes

72. Which type of hybridisation of each carbon is there in the compound?
$CH_3 - CH = CH - CN$
(a) sp^3, sp^2, sp^2, sp (b) sp^3, sp^2, sp^2, sp^3
(c) sp^3, sp^2, sp^3, sp^3 (d) sp^3, sp^2, sp, sp^3

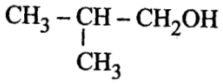
73. Point out the incorrect statement about resonance?
(a) Resonance structures should have equal energy.
(b)In resonance structures, the constituent atoms must be in the same position.
(c) In resonance structures, there should not be same number of electron pairs.
(d) Resonance structures should differ only in the location of electrons around the constituent atoms.

74. Free radicals can undergo.
(a) Rearrangement to a more stable free radical
(b) Decomposition to give another free radical
(c)Combination with other free radical
(d) All are correct.

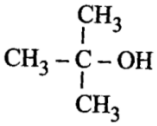
75. The number of hyperconjugating structures shown by the carbocations are given below. Which one is not correctly matched?
(a) $CH_3 - \overset{+}{C}(CH_3) - CH_3$ - 9 hyperconjugating structures
(b) $CH_3 - \overset{+}{C}H - CH_3$ – 8 hyperconjugating structures
(c) $CH_3 - \overset{+}{C}H_2$ - 3 hyperconjugating structures
(d) $\overset{+}{C}H_3$ - No hyperconjugating structures

76. Which of the following alcohols on dehydration gives most stable carbocation?

(a)

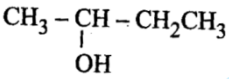


(b)



(c) $CH_3-CH_2-CH_2-CH_2OH$

(d)



77. Inductive effect involves

(a) Displacement of $\sigma-$ electrons resulting in polarization

(b) Displacement of $\pi-$ electrons resulting in polarization

(c) Delocalisation of $\sigma-$ electrons

(d) Delocalisation of $\pi-$ electrons.

78. When ZnS is boiled with strong nitric acid, the products are zinc nitrate, sulphuric acid and nitrogen dioxide. What are the changes in the oxidation numbers of Zn, S and N :

(a) + 2, + 4, – 1 (b) + 2, + 6, – 2

(c) 0, + 4, – 2 (d) 0, + 8, – 1

79. The following equations are balanced atomwise and chargewise.

(i) $Cr_2O_7^{2-} + 8H^+ + 3H_2O_2 \longrightarrow 2Cr^{3+} + 7H_2O + 3O_2$

(ii) $Cr_2O_7^{2-} + 8H^+ + 5H_2O_2 \longrightarrow 2Cr^{3+} + 9H_2O + 4O_2$

(iii) $Cr_2O_7^{2-} + 8H^+ + 7H_2O_2 \longrightarrow 2Cr^{3+} + 11H_2O + 5O_2$

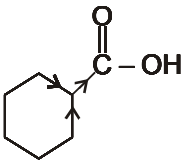
The precise equation/equations representing the oxidation of H_2O_2 is/are :

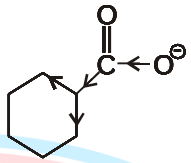
(a) (i) only (b) (ii) only

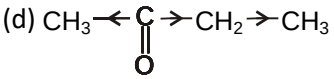
(c) (iii) only (d) all the three

80. Which of the following has incorrect direction of Inductive effect.

(a) 

(b) 

(c) 

(d) 

81. Which of the following group shows + I effects :

(a) – F (b) – CHO

(c) $-\overset{\ominus}{N}H$ (d) – CN

82. Arrange following compounds in decreasing order of their dipole moment.

(I) $CH_3—CH_2—NO_2$

(II) $CH_3—CH_2—Cl$

(III) $CH_3—CH_2—Br$

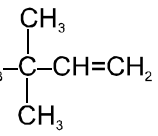
(IV) $CH_3—CH_2—I$

(a) IV > III >I > II (b) IV > I > III > II

(c) I > III > IV > II (d) I > II > III > IV

83. Hyperconjugation is possible in which of the following species ?

(a) $CH_3-\overset{\ominus}{C}H_2$ (b) $C_6H_5-CH_3$

(c) $CH_2=CH_2$ (d) 

84. Which of the following cannot exhibit hyperconjugation ?

(a) $CH_3\dot{C}H_2$ (b) $(CH_3)_2\overset{+}{C}H$

(c) $CH_3CH = CH_2$ (d) $(CH_3)_3C-\overset{+}{C}H_2$

85. Among the following alkenes the order of decreasing stability is :

(**I**) 1-Butene

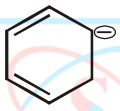
(**II**) Cis-2-butene

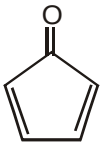
(**III**) Trans-2-butene

(a) II > I > III (b) III > I > II

(c) I > II > III (d) III > II > I

86. Which of the following compound is an Aromatic in nature.

(a)  (b) 

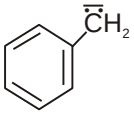
(c)  (d) 

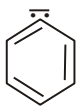
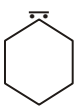
87. Which of the following intermediates have the complete octet around the carbon atom ?

(a) Carbonium ion (b) Carbanion

(c) Free radical (d) Carbene

88. Arrange the following carbanions in decreasing order of stability :

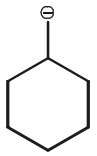
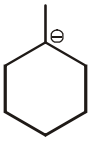
(i)  (ii) 

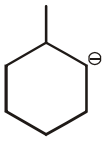
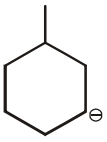
(iii)  (iv) 

(a) (i) > (ii) > (iii) > (iv) (b) (ii) > (iii) > (i) > (iv)

(c) (iii) > (iv) > (ii) > (i) (d) (iv) > (ii) > (i) > (iii)

89. Which one is least stable carbanion :

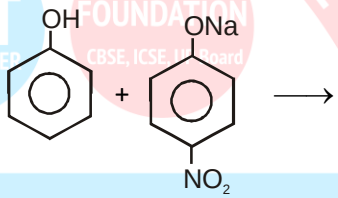
(a)  (b) 

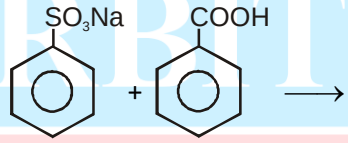
(c)  (d) 

90. Which of the following reactions is feasible ?

(a) $CH_3COOH + HCOONa \longrightarrow$

(b) $HC \equiv C - Na + H_2O \longrightarrow$

(c) 

(d) 

91. Which of the following shows the correct order of decreasing basicity in aqueous medium ?

(a) $(CH_3)_3N > (CH_3)_2NH > CH_3NH_2 > NH_3$

(b) $(CH_3)_2NH > (CH_3)_3N > CH_3NH_2 > NH_3$

(c) $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N > NH_3$

(d) $(CH_3)_2NH > CH_3NH_2 > NH_3 > (CH_3)_3N$

92. Decreasing order of basicity is :

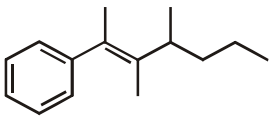
(i) $C_6H_5-NH_2$ (ii) $C_6H_5-NH-C_6H_5$

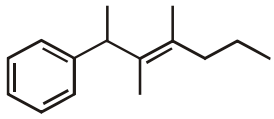
(iii) $C_6H_5-\underset{\displaystyle C_6H_5}{\underset{|}{N}}-C_6H_5$ (iv) $CH_3-CH_2-NH_2$

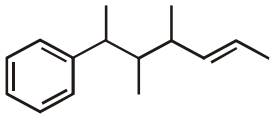
(a) i > ii > iii > iv (b) iv > i > ii > iii

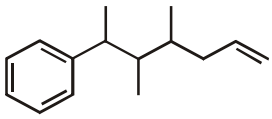
(c) iii > ii > i > iv (d) iv > iii > ii > i

93. Select the correct order of heat of hydrogenation?

(I) 

(II) 

(III) 

(IV) 

(a) I > II > III > IV (b) IV > III > II > I

(c) II > III > IV > I (d) II > III > I > IV

94. Consider the following three halides :

(i) $CH_3–CH_2–Cl$ (ii) $CH_2=CH–Cl$ (iii) $C_6H_5–Cl$

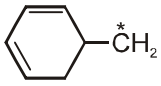
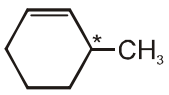
Arrange C–Cl bond length of these compounds in decreasing order :

(a) i > ii > iii (b) i > iii > ii

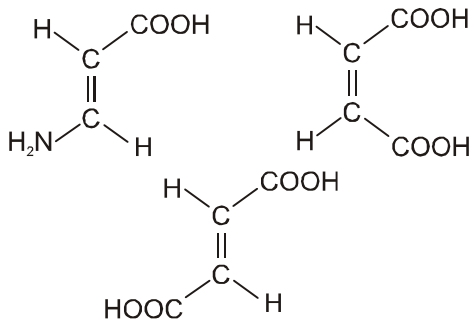
(c) iii > ii > i (d) ii > iii > i

95. Maximum stability will be in which of the following free radicals ?

(a) $H_2C=\overset{*}{C}H$ (b) $H_2C=CH–\overset{*}{C}H_2$

(c)  (d) 

96. Write the order of K_{a_1} values of following acids :

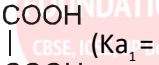


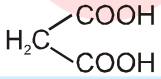
(I) (II)

(III)

(a) II > III > I (b) I > III > II

(c) III > II > I (d) II > I > III

97. (I)  ($Ka_1 = 5400 \times 10^{-5}$)

98. (II)  ($Ka_1 = 140 \times 10^{-5}$)

The reason for higher Ka_1 value of oxalic acid (I) as compared to that of malonic acid (II) is :

(a) The anion formed after the removal of first $H^{\oplus}$ of oxalic acid (I) is more stable due to stronger –I effect of –COOH present at close distance

(b) The anion formed after the removal of first $H^{\oplus}$ of oxalic acid (I) is less stable due to +I effect of –COOH group.

(c) The anion formed on removal of first $H^{\oplus}$ of malonic acid is more stable than that of oxalic acid due to –m effect of other –COOH group.

(d) Oxalic acid is more acidic than malonic acid due to its lesser molecular weight.

98. Which of the following would be expected to be easily dissociate in water ?

(a) $ClCH_2CH_2CH_2COOH$

(b) $CH_3CCl_2CH_2COOH$

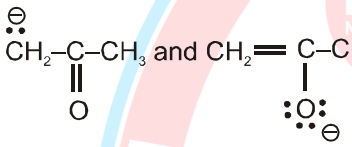
(c) $CH_3CH_2CCl_2COOH$

(d) $CH_3CH_2CHClCOOH$

99. Increasing pK_b values of o-, m- and p-toluidine is

(a) p < m < o (b) o < m < p

(c) p < o < m (d) m < o < p

100.  and are :

(a) Resonating structures

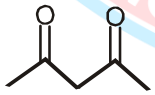
(b) Tautomers

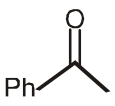
(c) Geometrical isomers

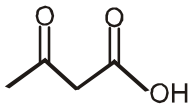
(d) Optical isomers

101. Maximum enol content is in :

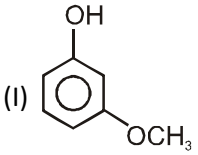
(a) 

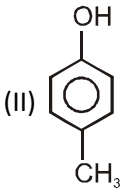
(b) 

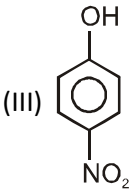
(c) 

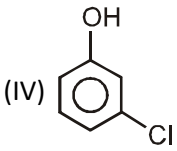
(d) 

102. The correct decreasing order of pK_a is :

(I) 

(II) 

(III) 

(IV) 

(a) II > IV > I > III (b) III> IV > II > I

(c) II > III > IV > I (d) IV > II > I > III

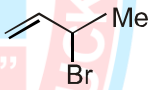
103. Which of the following undergoes nucleophilic substitution by S_N1 mechanism :

(a) Ethyl chloride (b) Vinyl chloride

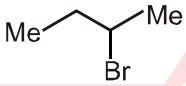
(c) Benzyl chloride (d) Chloro benzene

104. Consider the following bromides :

(A)



(B)



(C)

The correct, order of S_N1 reactivity is

(a) B > C > A (b) B > A > C

(c) C > B > A (d) A > B > C

105. An unknown alochol is treated with the "Lucas reagent" to determine whether the alcohol is primary, secondary or tertiary. Which alcohol reacts fastest and by what mechanism :

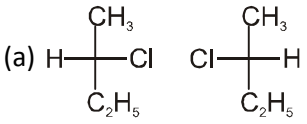
(a) secondary alcohol by S_N1

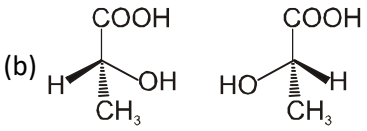
(b) tertiary alcohol by S_N1

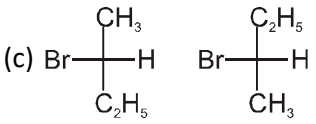
(c) secondary alcohol by S_N2

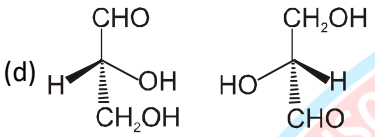
(d) tertiary alcohol by S_N2

106. Which is not the pair of enantiomers ?

(a) 

(b) 

(c) 

(d) 

107. The instrument which can be used to measure optical activity, i.e., specific rotation:

(a) Refractometer (b) Photometer

(c) Voltmeter (d) Polarimeter

108. The minimum torsional strain developed in butane is at dihedral angle(s)

(a) 0º, 108º (b) 120°, 240º

(c) 60°, 180°, 300° (d) 60°, 120°, 180°

109. Which of the following is not an allylic halide?

(a) 4- Bromopent – 2 – ene

(b) 3- bromo -2- methylbut -1-ene

(c) 1-Bromobut -2- ene

(d) 4-bromobut -1-ene

110. The IUPAC name of $(CH_3)_2CH-CH_2-CH_2Br$ is

(a) 1- Bromopentane

(b) 1-bromo-3-methylbutane

(c) 2-methyl-4-bromobutane

(d) 2-methyl-3-bromopropane

111. Which of the following compounds will have highest melting points.

(a) Chlorobenzene (b) o-Dichlorobenzene

(c) m- Dichlorobenzene (d) p- Dichorobenzene.

112. Which of the following alkyl halides will undergo S_N1 reaction most readily?

(a) $(CH_3)_3C-F$ (b) $(CH_3)_3C-Cl$

(c) $(CH_3)_3C-Br$ (d) $(CH_3)_3C-I$

113. Which of the following halides is not correct according to the name and classification?

(a) $CH_3CH_2C(CH_3)_2CH_2I$

1- Iodo -2, 2-dimethylbutane, primary haloalkane

(b) $(CH_3)_2CHCH(Cl)CH_3$

2-Chloro -3-methylbutane, secondary halolkane

(c) $CH_3C(Cl)(C_2H_5)CH_2CH_3$

2-Chloro -2-ethylbutane, secondary haloalkane

(d) $CH_3-CH_2-\underset{Cl}{\underset{|}{CH}}-\underset{CH_3}{\underset{|}{CH}}-CH_2-CH_3$

3-Chloro -4-methylhexane, secondary haloalkane

114. Identify the products X and Y formed in the folloing reaction;

$CH_3-CH_2-CH=CH-CH_3+HCl\longrightarrow X+Y$

(a) $X=CH_3CH_2CH_2CH_2Cl\ Y=CH_3CH_2-\underset{Cl}{\underset{|}{CH}}-CH_2CH_3$

(b) $X=CH_3CH_2-\underset{Cl}{\underset{|}{CH}}-CH_2CH_3, Y=CH_3CH_2CH_2-\underset{Cl}{\underset{|}{CH}}-CH_3$

(c) $X=CH_3CH_2-\underset{Cl}{\underset{|}{CH}}-CH_2CH_3, Y=CH_3-\underset{Cl}{\underset{|}{CH}}-\underset{Cl}{\underset{|}{CH}}-CH_2CH_3.$

(d) $X=ClCH_2-CH_2-CH=CH-CH_3, Y=CH_3CH_2-CH=CH-CH_2Cl$

115. Alkyl halides are immiscible in water though they are polar because.

(a) They react with water to give alcohols

(b) They cannot form hydrogen bonds with water

(c) $C-X$ bond cannot be broken easily

(d) They are stable compounds and are not reactive

116. Which of the following alkyl halides undergoes hydrolysis water aqueous KOH at the faster rate?

(a) $CH_3CH_2CH_2Cl$ (b) CH_3CH_2Cl

(c) $CH_3CH_2CH_2CH_2Cl$ (d) $CH_3CH_2CH(Br)CH_3$

117. Identify the products (A) and (B) in the reactions.

$RX + AgCN \to \underline{(A)} + AgX;$

$RX + KCN \to \underline{(B)} + KX$

(a) $(A) \to RCN, (B) \to RCN$

(b) $(A) \to RCN, (B) \to RNC$

(c) $(A) \to RNC, (B) \to RCN$

(d) $(A) \to RNC, (B) \to RNC$

118. $CH_3OH \xrightarrow{PI_3} X \xrightarrow{KCN} Y \xrightarrow{Hydrolysis} Z.$

The final product in the reaction is

(a) CH_3OH (b) $HCOOH$

(c) CH_3CHO (d) CH_3COOH

119. An alkyl halide, RX reacts with KCN to give propane nitrile. RX is

(a) C_3H_7Br (b) C_4H_9Br (c) C_2H_5Br (d) $C_5H_{11}Br$

120. S_N1 reaction is fastest in

(a) CH_3CH_2Br

(b) $CH_3-CH(Cl)-CH_3$

(c) $(CH_3)_3C-Cl$

(d) $CH_3-CH(Cl)-CH_2-CH_3$

121. Which of the following reaction does not take place?

(a) $C_2H_5Br + KNO_2 \to C_2H_5-O-N=O + KBr$

(b) $C_2H_5Br + AgNO_2 \to C_2H_5-N(=O)\to O$ +AgBr

(c) $C_2H_5Br + AgCN \to C_2H_5NC + AgBr$

(d) $C_2H_5Br + KCN \to C_2H_5NC + KBr$

122. Which is the correct increasing order of boiling points of the following compounds.

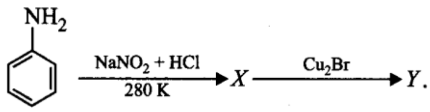
1-Bromoethane , 1-Bromopropane, 1-Bromobutane, Bromobenzene

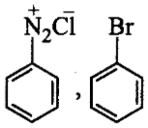
(a) Bromobenzene < 1- Bromobutane < 1- Bromopropane < 1- Bromoethane

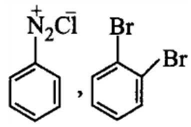
(b) Bromobenzene < 1- Bromoethane < 1- Bromopropane < 1- Bromobutane

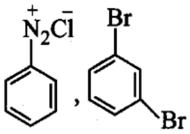
(c) 1- Bromopropane < 1-bromobuatane < 1- Bromoehane < Bromobenzene

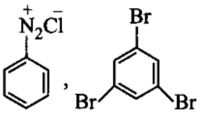
(d) 1- Bromoehane < 1- Bromopropane < 1- Bromobutane < Bromobenzene

123.  X and Y in the reaction are.

(a) 

(b) 

(c) 

(d) 

124. Apomixis in plant means development of a plant

(a) From root cuttings (b) Without fusion of gametes

(c) From fusion of gametes (d) From stem of cuttings

125. Plants identical to mother plants can be had obtained from

(a) Seeds (b) Stem cutting

(c) Both (a) and (b) (d) None of these

126. Reproducing new plants by cells instead of seeds is known as

(a) Biofertilizer (b) Mutation

(c) Tissue culture (d) Antibiotics

127. The reason of formation of embryoid from pollen grain in a tissue culture medium is

(a) Organogenesis (b) Double fertilization

(c) Test tube culture (d) Cellular totipotency

128. In which one pair both the plants can be vegetatively propagated by leaf pieces

(a) *Bryophyllum* and *Kalanchoe*

(b) *Chrysanthemum* and *Agave*

(c) *Agave* and *Kalanchoe*

(d) *Asparagus* and *Bryophyllum*

129. Stem cuttings are commonly used for the propagation of
(a) Banana (b) Rose (c) Mango (d) Cotton

130. Hypohydrophily occurs in

(a) *Vallisneria* (b) *Elodea*

(c) Alisma (d) *Ceratophyllum*

131. Stigma is always rough and sticky in-

(a) Entomophilous flowers

(b) Anemophilous flowers

(c) Hydrophilous flowers

(d) All types of flowers

132. Fragrant flowers with well developed nectaries are an adaptation for-

(a) Zoophily (b) Anemophily

(c) Entomophily (d) Hydrophily

133. Pollination by snails and slugs is-

(a) Ornithophily (b) Chiropterophily

(c) Entomophily (d) Malacophily

134. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.

(a) Monoecious plant bearing unisexual flowers

(b) Dioecious plant bearing only male or female flowers

(c) Monoecious plant with bisexual flowers

(d) Dioecious plant with bisexual flowers

135. Anthesis is

(a) opening of flower bud

(b) pollen mother cell under going meiosis

(c) Dehiscence of Anther

(d) Stigma becomes receptive

136. Development of embryo from the cells of the nucellus is called
(a) Parthenocarpy (b) Apocarpy

(c) Adventive embryony (d) Apospory

137. In a type of apomixis known as adventive embryony, embryos develop directly from the
(a) Nucellus or integuments

(b) Synergids or antipodals in a embryo sac

(c) Accessary embryo sacs in the ovule

(d) Zygote

138. How many Nucleus participate in double fertilization of *Capsella*

(a) 2 (b) 5

(c) 3 (d) 4

139. Double fertilization was discovered by Nawaschin in

(a) *Polygonum, Magnolia*

(b) *Lilium, Polygonum*

(c) *Fritillaria, Lilium*

(d) *Fritillaria, Pepromea*

140. *Casuarina* shows

(a) Porogamy (b) Mesogamy

(c) Chalazogamy (d) Acrogamy

141. Pollen tube enters in embryo sac through

(a) egg cell (b) synergid

(c) Antipodal cell (d) Degenerated synergid

142. Which of the following secrete chemical substances for attracting pollen tube towards micropyle of ovule

(a) Obturator (b) Synergid

(c) Filiform apparatus (d) Antipodal cells

143. The correct sequence of embryo formation is-

(a) heart shaped, globular, mature embryo, proembryo

(b) proembryo, mature embryo, globular, heart shaped

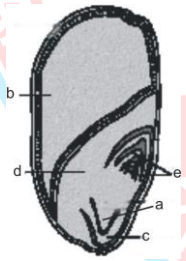
(c) globular, proembryo, heart shaped, mature embryo

(d) proembryo, globular, heart shaped, mature embryo

(a) b (b) c

(c) a (d) d

144.



In the above diagram, Identify the correct Labelling & select the correct option

(a) a - Embryo axis, b - Endosperm, c - Coleorhiza, d - scutellum, e - coleoptile

(b) a - Radicle, b - Aleuron layer, c - Coleorhiza, d - Endosperm, e - Plumula

(c) a - Radicle, b - Endosperm, c - Coleorhiza, d - scutellum, e - Plumule

(d) a - Embryo axis, b - Aleuron layer, c - Root-cap, d - Endosperm, e - Coleoptile

145. In angiosperms normally after fertilization

(a) The zygote divides earlier than the primary endosperm nucleus

(b) The primary endosperm nucleus divides earlier than the zygote

(c) Both the zygote and primary endosperm nucleus divide simultaneously

(d) Both the zygote and primary endosperm nucleus undergo a resting period

146. Tectum, baculum, foot layer are the different parts of

(a) Microspore wall

(b) Microspore mother cell wall

(c) Megaspore wall

(d) Megaspore mother cell wall

147. Development and formation of pollen grains in anther of the stamen is known as

(a) Pollination (b) Fertilization

(c) Microsporogenesis (d) Megasporogenesis

148. Microsporogenesis is a synonym for

(a) Spermatogenesis

(b) Development of pollen

(c) Development of male gametophyte

(d) Development of female gametophyte

149. In flowering plants, a mature 'male gametophyte' is derived from a 'pollen mother cell' by

(a) Three mitotic divisions

(b) One meiotic and two mitotic divisions

(c) Two meiotic divisions

(d) A single meiotic division

150. Mature male gametophyte is made up of
(a) One cell (b) Two cells
(c) Three cells (d) Four cells

151. .Kupffer cells are present in
(a) Pancreas (b) Thyroid gland
(c) Liver (d) Small intestine

152. Diagnosis of sexually-transmitted disease is done by -
(a) DNA hybridization (b) PCR
(c) Elisa test (d) All these

153. Fructose is present in the secretion of
(a) Bartholin's gland (b) Cowper's gland
(c) Perineal glands (d) Seminal vesicles

154. Cauda epididymis leads to the
(a) Rete testis (b) Vas deferens
(c) Vas efferens (d) Ejaculatory duct

155. The sertoli cells are found in the testis. These cells are also known as
(a) Nurse cells (b) Reproductive cells
(c) Receptor cells (d) Germ cells

156. The Bartholin's glands of a mammalian female correspond to which glands in the mammalian male?
(a)Cowper's glands
(b) Perineal glands
(c) Rectal glands
(d) Prostate gland

157. The cervix is a part
(a) of kidney (b) of fallopian tube
(c) of epididymis
(d) between uterus and vagina

158. Bartholin's glands are situated
(a) At the reduced tail end of birds
(b) On either side of vagina in human females
(c) On either side of vas deferens in human males
(d) On the either side of the head of some amphibians

159. The fertilization of an egg, by the sperm, in the female genital tract, takes place in the
(a) Uterus (b) Ovary
(c) Vagina (d) Oviduct (fallopian tube)

160. The number of chromosomes in a primary spermatocyte is
(a) Same as that of secondary spermatocyte
(b) Same as that of spermatid
(c) Half of that of spermatogonium
(d) Same as that of spermatogonium

161. The discharge of secondary oocyte from Graafian follicle is termed as
(a) Oogenesis (b) Abortion
(c) Fertilization (d) Ovulation

162. The correct sequence of cell stages in spermatogenesis is
(a) Spermatocytes, spermatids, spermatogonia, spermatozoa
(b) Spermatogonia, spermatocytes, spermatids, spermatozoa
(c) Spermatocytes, spermatogonia, spermatids, spermatozoa
(d) Spermatogonia, spermatids, spermatocytes, spermatozoa

163. Which hormone/s control the menstrual cycle in human beings?

(a) LH (b) Progesterone

(c) FSH (d)FSH, LH, Oestrogen

164. In spermatogenesis, the phase of maturation involves the

(a) Growth of spermatogonia to form primary spermatocytes

(b) Formation of spermatogonia from primary spermatocytes through mitosis

(c) Formation of spermatids from primary spermatocytes through meiosis

(d) Formation of oogonia from the spermatocytes through meiosis

165. Ovulation normally occurs during

(a) 11^{th}- 12^{th} (b) 14^{th} -16^{th}

(c) 15^{th}- 28^{th} (d) 21^{th} -26^{th}

166. An enzyme present in a sperm is/are

(a) Spermin (b) Lysozyme

(c) Sperm lysin (d) Hydrolytic enzyme

167. Which one of the following hormones, controls the function of sertoli cells?

(a) FSH (b) Oestrogen

(c) ACTH (d) Testosterone

168. An inhibition of secretion of which of the following hormones is necessary for the disintegration of corpus luteum ?

(a) LH (b) Progesterone

(c) LTH (d) FSH

169. Which one of the following is the most likely root cause of absence of menstruation a human female having regular cycles ?

(a) Fertilisation of the ovum

(b) Maintenance of the hypertrophied endometrium

(c) Maintenance of high concentration of sex hormones in the blood stream

(d) Retention of well developed corpus luteum

170. A change in the amount of yolk and its distribution in the egg will affect

(a) Formation of zygote

(b) Pattern of cleavage

(c) Number of blastomeres produced

(d) Fertilization

171. The skeleton and muscles orginate in the development from or during embryonic development. Endoskeleton and muscles develop from which germinal layer?

(a) Ectoderm (b) Endoderm

(c) Mesoderm (d) Yolk plug

172. The reaction between phenol and chloroform in the presence of aqueous NaOH is

(a) Nucleophilic substitution reaction

(b) Electrophilic addition reaction

(c) Electrophilic substitution reaction

(d) Nucleophilic addition reaction

173. Methyl alcohol is industrially prepared by the action of

(a) CH_3COCH_3 (b) $CO + H_2$

(c) CH_3COOH (d) C_2H_5OH

174. The process of converting alkyl halides into alcohols involves

(a) Addition reaction

(b) Substitution reaction

(c) Dehydrohalogenation reaction

(d) Rearrangement reaction

175. Which of the following is most acidic?

(a) Benzyl alcohol (b) Cyclohexanol

(c) Phenol (d) m-Chlorophenol

176. For the reaction

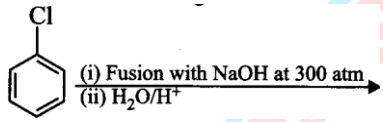
$C_2H_5OH + HX \rightarrow C_2H_5X + H_2O$; the order of reactivity is

(a) $HCl > HBr > HI$ (b) $HI > HBr > HCl$

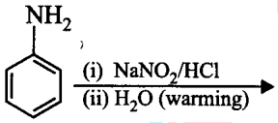
(c) $HBr > HCl > HI$ (d) $HI > HCl > HBr$

177. Which of the following reaction will not yield phenol?

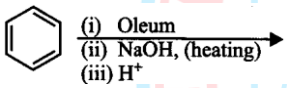
(a)



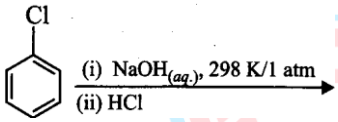
(b)



(c)



(d)



178. Which of the following alcohols will given the most stable carbocation during dehydration?

(a) 2-Methyl -1-propanol (b) 2-Methyl -2 propanol

(c) 1-Butanol (d) 2-Butanol

179. Which of the following is not a characteristic of alcohol?

(a) They are lighter than water.

(b) Their boiling points rise fairly uniformly with rising molecular weight

(c) Lower members are insoluble in water and organic solvents but the solubility regularly increase with molecular mass.

(d) Lower members have a pleasant smell and burning taste, higher members are colourless and tasteless

180. $(CH_3)_3C-CH_2OH \xrightarrow[170^\circ C]{Conc.H_2SO_4} X$

In the reaction X is

(a) $(CH_3)_2 = CHCH_3$ (b) $CH_3 \equiv CH$

(c) $(CH_3)_2CHCH_2CH_3$ (d) $CH_3-CH_2-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}= CH_2$

181. Propanone on reaction with alkyl magnesium bromide followed by hydrolysis will produce

(a) Primary alcohol (b) Secondary alcohol

(c) Tertiary alcohol (d) Carboxylic acid

182. Picric acid is a yellow coloured compound. Its chemical name is

(a) M-nitrobenzoic acid (b) 2, 4, 6-trinitrophenol

(c) 2, 4, 6-tribromophenol (d) P-nitrophenol

183. The best reagent to convert pent -3-en-2-ol into pent 3-en-2-one is

(a) Acidic permanganate

(b) Acidic dichromate

(c) Chromic anhydride in glacial acetic acid

(d) Pyridinium chlorochromate.

184. Unlike phenol, 2,4-dinitrophenol is soluble in sodium carbonate solution in water because

(a) Presence of two $-NO_2$ groups in the ring makes 2, 4-dinitrophenol a stronger acid than phenol

(b) Presence of two $-NO_2$ groups in the ring makes 2, 4-dinitrophenol a weaker acid than phenol

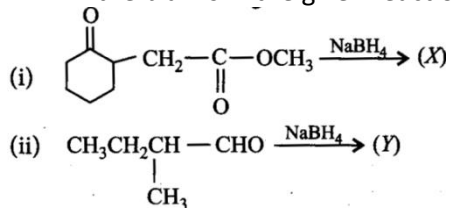
(c) Presence of two $-NO_2$ groups make the hydrogen bonding easier making $2,4-$ dinitrophenol soluble

(d) Nitro group reaction with Na_2CO_3 while $-OH$ group does not

185. The most suitable reagent for the conversion of $RCH_2OH \rightarrow RCHO$ is

(a) $K_2Cr_2O_7$ (b) CrO_3 (c) $KMnO_4$ (d) PCC

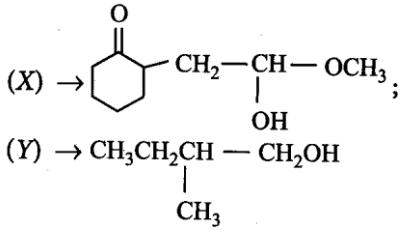
186. Fill in the blanks in the given reactions.



(i) $\xrightarrow{NaBH_4} (X)$

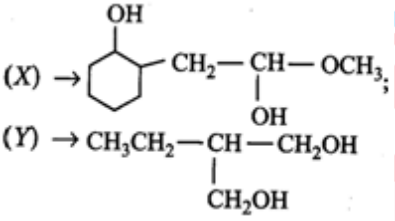
(ii) $CH_3CH_2\underset{CH_3}{\underset{|}{CH}}-CHO \xrightarrow{NaBH_4} (Y)$

(a)



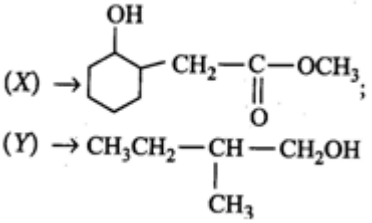
$(X) \rightarrow$; $(Y) \rightarrow CH_3CH_2\underset{CH_3}{\underset{|}{CH}}-CH_2OH$

(b)



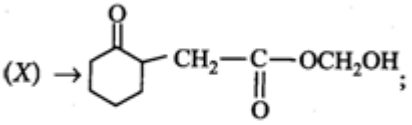
$(X) \rightarrow$; $(Y) \rightarrow CH_3CH_2-\underset{CH_2OH}{\underset{|}{CH}}-CH_2OH$

(c)



$(X) \rightarrow$; $(Y) \rightarrow CH_3CH_2-\underset{CH_3}{\underset{|}{CH}}-CH_2OH$

(d)



$(X) \rightarrow$; $(Y) \rightarrow CH_3CH_2CH_2CH_2CH_2OH$

187. A primary alcohol, $C_3H_8O(A)$ on heating with sulphuric acid undergo dehydration to give an alkene, B-B when reacted with HCl gave C, which on treatment with aqueous KOH gives compound $D(C_3H_8O)$. A and D are

(a) Functional isomers (b) Position isomers

(c) Chain isomers (d) Stereo isomers

188. Which of the following is the proper method to prepare n-hexan from n-propyl alcohol?

$$CH_3CH_2CH_2OH \xrightarrow{(X)} CH_3CH_2CH_2Br \xrightarrow{(Y)} CH_3(CH_2)_4CH_3$$

(a) $(X) \rightarrow HBr, (Y) \rightarrow HCN$

(b) $(X) \rightarrow HBr, (Y) \rightarrow Na, ether$

(c) $(X) \rightarrow Br_2, (Y) \rightarrow CH_3CN$

(d) $(X) \rightarrow Br_2, (Y) \rightarrow KMnO_4$

189. Cumene on reaction with oxygen followed by hydrolysis gives

(a) CH_3OH and $C_6H_5COCH_3$

(b) C_6H_5OH and $(CH_3)_2O$

(c) $C_6H_5OCH_3$ and CH_3OH

(d) C_6H_5OH and CH_3COCH_3

190. With increase in temperature the conductivity of

(a) Metals increases and of semiconductor decreases.

(b) Semiconductors increases and of metals decreases.

(c) In both metals and semiconductors increase.

(d) In both metal and semiconductor decreases.

191. An electric heater is connected to the voltage supply After few seconds, current get its steady value then its initial current will be

(a) Equal to its steady current

(b) Slightly higher than its steady current

(c) Slightly less than its steady current

(d) Zero

192. Three resistors of resistances 3Ω, 4Ω and 5Ω are combined in parallel. This combination is connected to a battery of emf 12V and negligible internal resistance, current through each resistor in ampere is

(a) 4, 3, 2.4 (b) 8, 7, 3.4 (c) 2, 5, 1.8 (d) 5, 5, 8.2

193. In a circuit a cell with internal resistance r is connected to an external resistance R. The condition for the maximum current that drawn from the cell is

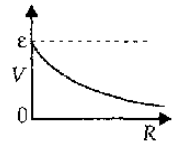
(a) R = r (b) R < r (c) R > r (d) R = 0

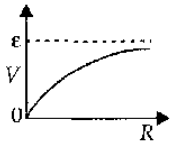
194. The battery of a trunk has an emp of 24 V. If the internal resistance of the battery is 0.8 Ω. What is the maximum current that can be drawn from the battery?

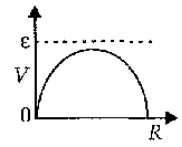
(a) 30 A (b) 32 A

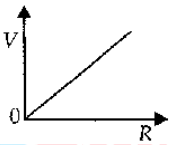
(c) 33 A (d) 34 A

195. A cell having an emf ε and internal resistance r is connected across a variable external resistance R. As the resistance R is increased, the plot of potential difference V across R is given by

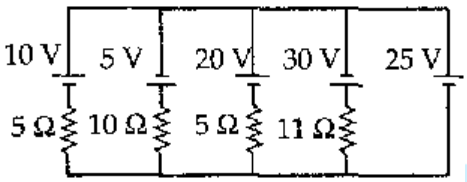
(a) 

(b) 

(c) 

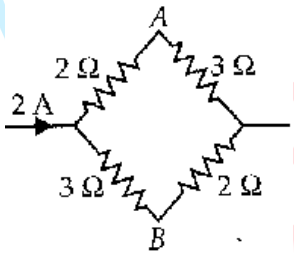
(d) 

196. In the circuit shown, current flowing through 25 V cell is



(a) 7.2 A (b) 10 A (c) 12 A (d) 14.2 A

197. The potential difference between A and B as shown in figure is



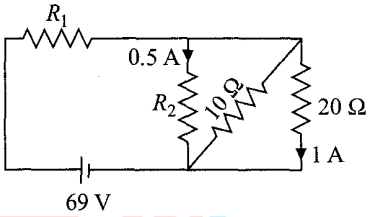
(a) 1 V (b) 2 V (c) 3 V (d) 4 V

198. A wire connected in the left gap of a meter bridge balance a $10\ \Omega$ resistance in the right gap to a point, which divides the bridge wire in the ratio 3 : 2. If the length of the wire is 1 m. The length of one ohm wire is

(a) 0.057 m (b) 0.067 m

(c) 0.37 m (d) 0.134 m

199. In the circuit shown in the given figure, the resistances R_1 and R_2 are respectively



(a) 14 Ω and 40 Ω (b) 40 Ω and 14 Ω

(c) 40 Ω and 30 Ω (d) 14 Ω and 30 Ω

200. In the Bohr's model of hydrogen atom, the electrons moves around the nucleus in a circular orbit of a radius $5 \times 10^{-11} metre$. It's time period is $1.5 \times 10^{-16} sec$. The current associated is

(a) Zero (b) $1.6 \times 10^{-19} A$

(c) $0.17\ A$ (d) $1.07 \times 10^{-3} A$