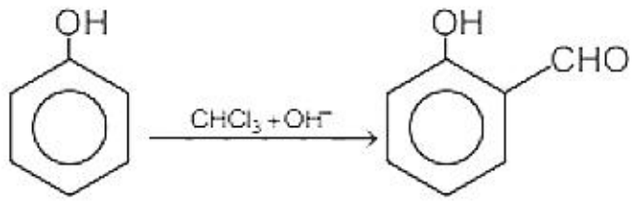
JIPMER-MBBS-2018-3 Jun-Morning
Chemistry

1. 

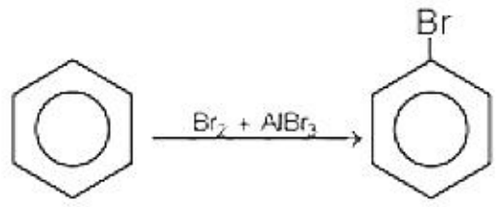
Intermediate of above reaction is:

(1) $:CCl_2$

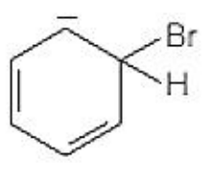
(2) $:CHCl$

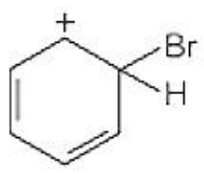
(3) $\overset{+}{C}HCl_2$

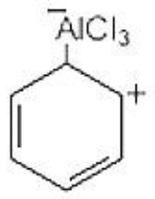
(4) $\overset{+}{C}Cl_3$

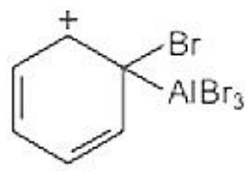
2. 

Which is intermediate of above reaction:

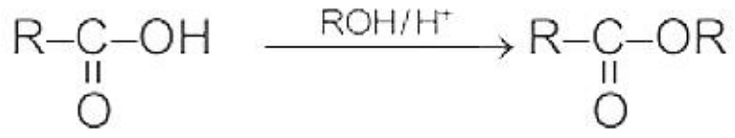
(1) 

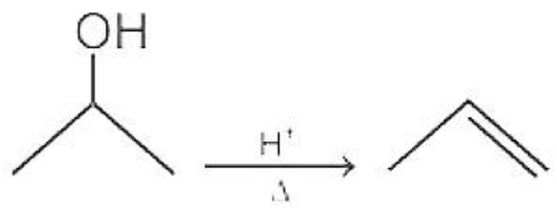
(2) 

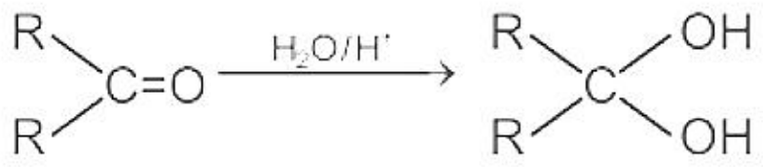
(3) 

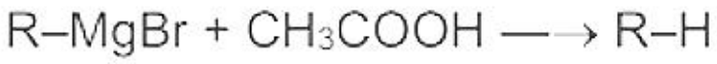
(4) 

3. Which of the following is substitution reaction-

(1) 

(2) 

(3) 

(4) 

4. Which is the following undergoes self oxidation and self reduction in same reaction

(1) C_7H_8O

(2) CH_2O

(3) C_3H_7O

(4) C_2H_4O

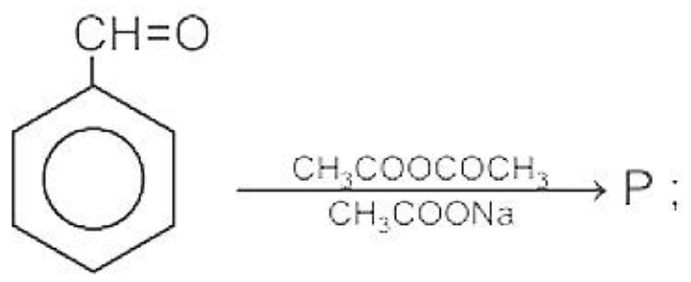
5. Which of the following reaction produces ethylacetoacetate-

(1) Cannizaro reaaction

(2) Claisen reaction

(3) Reformatsky reaction

(4) Aldol reaction

6. 

Major product of above reaction :

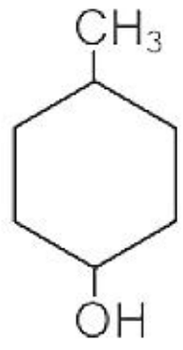
(1) $C_6H_5-CH=CH-COOH$

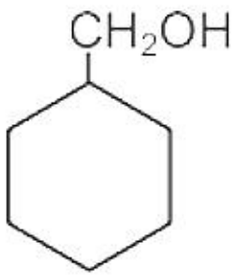
(2) C_6H_5-COOH

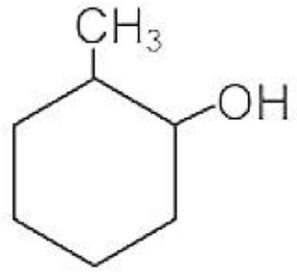
(3) $C_6H_5-CH=CH-COOCH_3$

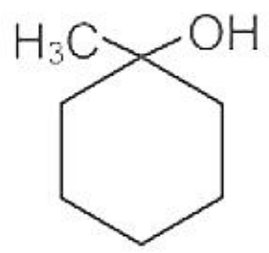
(4) $C_6H_5-CH_2-CHO$

7. Which of the following alcohol will react fastest with HCl

(1) 

(2) 

(3) 

(4) 

8. Which is correct for cellulose –

(1) branched, $\alpha(1,4)$–glucose

(2) Unbranched, $\alpha(1,6)$–glucose

(3) Unbranched, $\beta(1,4)$– glucose

(4) branched, $\alpha(1,4)$ band β (1, 6)

9. Which of the following is correct for Lactose

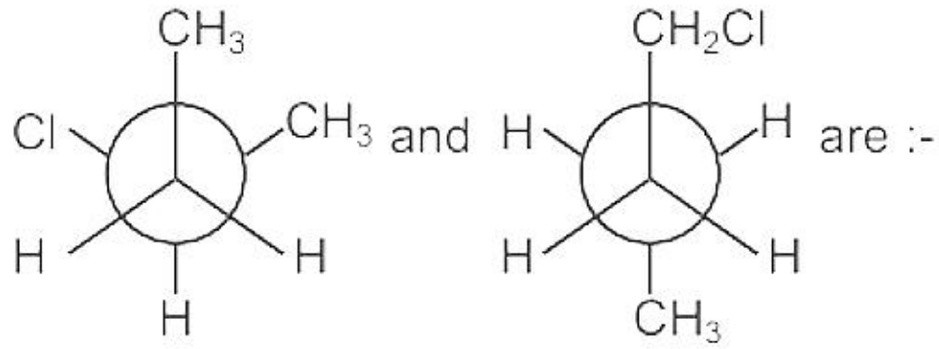
(1) It is nonreducing sugar

(2) Glycosidic bond [1,4] between glucose and galactose

(3) Glycosidic bond [1,4] between glucose and fructose

(4) Glycosidic bond [1,2] between glucose and galactose

10.



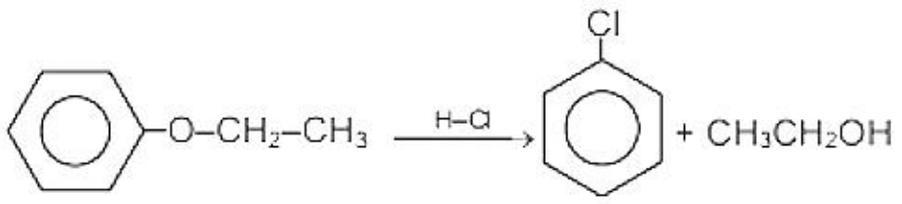
(1) Enantiomers

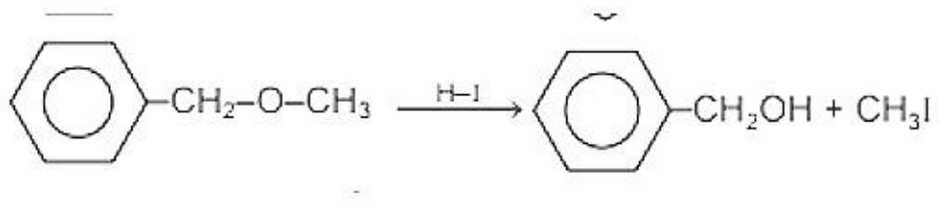
(2) Conformers

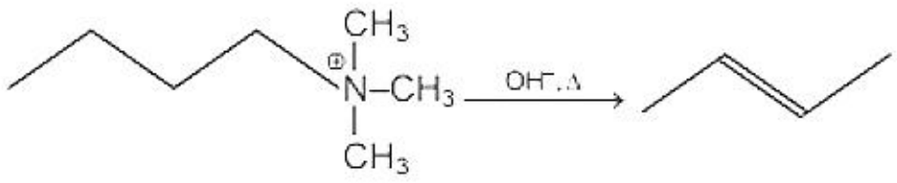
(3) Positional isomers

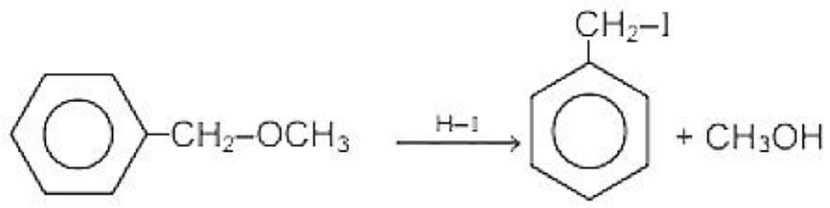
(4) None of these

11. Which of the following is correct

(1) 

(2) 

(3) 

(4) 

12. Which of the following is not aromatic heterocyclic-

(1) Pyrol

(2) Furon

(3) pyridine

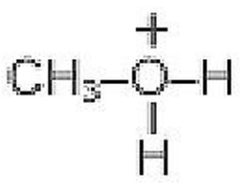
(4) piperidine

13. Which of the following is not a nucleophile:

(1) CH_3O^-

(2) H_2O

(3) $CH_3 - OCH_3$

(4) 

14. What is Tg for polymer

(1) Melting point

(2) Boiling point

(3) Glass transition temperature

(4) None of these

15. In the given reaction

$XeF_6 + ... \rightarrow XeO_3 + 6HF$

Complete the reaction

(1) $24H_2O$

(2) $3H_2O$

(3) $6H_2O$

(4) $12H_2O$

16. Which of the following is organometaliccompound

(1) Methyl lithium

(2) Lithium methoxide

(3) Lithium dimethyl amide

(4) Lithium acetate

17. Increasing order of oxidation state of metal in

$KMnO_4, MnCl_2, MnO_2, Mn(OH)_3$

(1) $Mn(OH)_3 < MnCl_2 < MnO_2 < KMnO_4$

(2) $KMnO_4 < Mn(OH)_3 < MnO_2 < MnCl_2$

(3) $MnCl_2 < Mn(OH)_3 < KMnO_4 < MnO_2$

(4) $MnCl_2 < Mn(OH)_3 < MnO_2 < KMnO_4$

18. Smallest bond angle in the following is

$NCl_3, PCl_3, SbCl_3, AsCl_3$

(1) NCl_3

(2) PCl_3

(3) $SbCl_3$

(4) $AsCl_3$

19. In the reaction

$NaOH(\text{hot and conc.}) + Cl_2 \rightarrow NaCl + NaClO_3$

Change in oxidation state of Cl_2 is:

(1) 0 to -1 and $+5$

(2) 0 to -1 and $+3$

(3) 0 to 0 and -1

(4) 0 to -1 and $+7$

20. Which of the following is not sp^3 hybridise

(1) BH_3

(2) BH_4^-

(3) NH_4^+

(4) NH_3

21. Which of the following is paramagnetic?

(1) Rhombic S_8

(2) Rhombic S_6

(3) Vapour S_2

(4) None of these

22. Which of the following reaction is incorrect?

(1) $KBr_3 + I_2 \rightarrow KI_3 + Br_2$

(2) $KCl_3 + F_2 \rightarrow KF_3 + Cl_2$

(3) $KBr_3 + Cl_2 \rightarrow KCl_3 + Br_2$

(4) $Li_2O + KCl \rightarrow K_2O + LiCl$

23. In CaF_2 lattice coordination number of Ca^{+2} & F^- is:

(1) 4, 4

(2) 8, 8

(3) 4, 8

(4) 8, 4

24. Correct order of polarizing power is

(1) $Be^{+2} > Mg^{+2} > Ca^{+2} > K^+$

(2) $Be^{+2} > Ca^{+2} > Mg^{+2} > K^+$

(3) $Mg^{+2} > Ca^{+2} > Be^{+2} > K^+$

(4) $Mg^{+2} > Be^{+2} > Ca^{+2} > K^+$

25. Most reactive nobel gas is:

(1) Ar

(2) Xe

(3) He

(4) Ne

26. Cassetrite is Ore of :

(1) Sn

(2) Mg

(3) Pb

(4) Hg

27. If Molar conductivity of $Ca^{2+} = 119$ & Molar conductivity of $Cl^{-} = 71$ then find the molar conductivity of $CaCl_2$:

(1) 341

(2) 261

(3) 126

(4) 431

28. If 22 gm benzene Present in 100 gm CCl_4 then find the % W/W of benzene in solution:

(1) 15%

(2) 20%

(3) 12%

(4) 18%

29. Which have Vont Hoff factor same as $K_4\left[Fe(CN)_6\right]$

(1) $Al_2(SO_4)_3$

(2) $Mg(NO_3)_2$

(3) $CaCl_2$

(4) $NaNO_3$

30. Favorable condition for product formation in the given reaction.

$SO_2 + ½O_2 \rightarrow SO_3(g)$

(1) High pressure

(2) High temperature & low pressure

(3) Low temperature & high pressure

(4) Low temperature & low pressure

31. The time required to complete ¾th of first order reaction is 32 min. then find $t_{\frac{1}{2}} = ?$

(1) 16

(2) 160

(3) 1600

(4) 32

32. Which is amphoteric :

(1) Al_2O_3

(2) CrO_3

(3) BeO

(4) CO_2

33. Find the concentration of glucose in blood which have osmotic pressure $\pi = 7.7$ atm at $T = 25^{\circ}C$

(1) 0.31 M

(2) 0.45 M

(3) 0.56 M

(4) 0.89 M

34. A atom form F.C.C. lattice with density $d = 8.92$ gm / ml and edge length $a = 3.6 \times 10^{-8}$ cm then find the molecular mass of atom in a.m.u. ?

(1) 62 a.m.u

(2) 93 a.m.u

(3) 98 a.m.u

(4) 32 a.m.u

35. Formula of plaster of paris:

(1) $CaSO_4\,1/2\,H_2O$

(2) $CaSO_4\,2H_2O$

(3) $CaSO_4\,1H_2O$

(4) $CaSO_4\,4H_2O$

36. Oxide ion form H.C.P. lattice & Al^{3+} Occupies $\frac{2}{3}$ of octahedral void then find the formula of compound:

(1) Al_2O_3

(2) AlO_2

(3) Al_3O_2

(4) AlO

37. Heating vitamin B_2 then colour will be :

(1) Yellow

(2) Red

(3) Violet

(4) Black

38. Which of the following have maximum lattice energy :

(1) LiF

(2) CsCl

(3) KBr

(4) NaCl

39. Which of the following is the component of CsI_3 lattice:

(1) Cs^+, I^-, I_2 molecule

(2) Covalent bond

(3) Cs^+, &I^- ions

(4) Cs^+ & I_2

40. Which of the following transformation requires least energy?

(1) $F^-(g) \rightarrow F(g) + e^-$

(2) $P^-(g) \rightarrow P(g) + e^-$

(3) $S^-(g) \rightarrow S(g) + e^-$

(4) $Cl^-(g) \rightarrow Cl(g) + e^-$

41. Among Al_2O_3, SiO_2, P_2O_5 and N_2O_5 to give the compounds:

(1) $Al_2O_3 < SiO_2 < SO_2 < P_2O_3$

(2) $SiO_2 < SO_2 < Al_2O_3$, P_2O_3

(3) $SO_2 < P_2O_3 < SiO_2 < Al_2O_3$

(4) $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$

42. Heave water reacts respectively with CO_2, SO_3, P_2O_5 and N_2O_5 to give the compounds.

(1) D_2CO_3, D_2SO_4, D_3PO_2, DNO_2

(2) D_2CO_3, D_2SO_4, D_3PO_4, DNO_2

(3) D_2CO_3, D_2SO_3, D_3PO_4, DNO_2

(4) D_2CO_3, D_2SO_4, D_3PO_4, DNO_3

43. $[Cr(H_2O)_6]Cl_3$ (atomic number of Cr=24) has a magnetic moment of 3.83 BM. The correct distribution of 3*d*-electrions in the chromium present in the complex is

(1) $3d^1_{xy}$, $3d^1_{yz}$, $3d^1_{zx}$

(2) $3d^1_{xy}$, $3d^1_{yz}$, $3d^1_{z^2}$

(3) $3d^1_{(x^2-y^2)}, 3d^1 yz, 3d^1_{z^2}$

(4) $3d^1_{xy}, 3d^1_{(x^2-y^2)}, 3d^1_{xz}$

44. On adding $AgNO_3$ solution into KI solution, a negatively charged colloidal sol is obtained when they are in:

(1) 50 mL of 0.1M $AgNO_3$+50 mL of 0.1M KI

(2) 50 mL of 0.1M $AgNO_3$+50 mL of 0.2M KI

(3) 50 mL of 0.2M $AgNO_3$+50 mL of 0.1M KI

(4) None of these

45. Lichens do not like to grow in cities

(1) Because of absence of the right type of algae and fungi

(2) Because of lack of moisture

(3) Because of SO_2 pollution

(4) Because natural habitat is missing

46. In the first order reaction

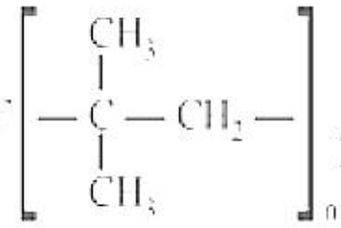
$2N_2O_5 \rightarrow 4NO_2 + O_2$, If a mol L^{-1} is the initial concentration of N_2O_5, the concentration of NO_2 at time t will be

(1) ae^{-kt}

(2) $a\left(1-e^{-kt}\right)$

(3) $2a\left(e^{-kt}-1\right)$

(4) $2a\left(1-e^{-kt}\right)$

47. Monomer  is

(1) 2-methylpropane

(2) Styrene

(3) Propylene

(4) Ethane

48. The insecticide containing 99% γ – isomer of benzene hexachloride is know as

(1) Lindane

(2) TNT

(3) Malathion

(4) Methoxychlor

49. Following table represents critical temperature of some gases.

Arrange these gases in their increasing order of liquification

Gas	H_2	He	N_2	O_2
T_c/K	33.2	5.3	126	154.3

(1) $He < N_2 < H_2 < O_2$

(2) $H_2 < He < N_2 < O_2$

(3) $He < H_2 < N_2 < O_2$

(4) $O_2 < N_2 < H_2 < He$

50. 0.5 mole of each H_2, SO_2 and CH_4 are kept in a container. A hole was made in the container. After 3h, the order of partial pressures in the container will be

(1) $P_{SO_2} > P_{CH_4} > P_{H_2}$

(2) $P_{H_2} > P_{SO_2} > P_{CH_4}$

(3) $P_{H_2} > P_{CH_4} > P_{SO_2}$

(4) $P_{SO_2} > P_{H_2} > P_{CH_4}$

51. The energy of second Bohr orbit of the hydrogen atom is $-328\ kJ\ mol^{-1}$, hence the energy of fourth Bohr orbit would be:

(1) $-41\ kJ\ mol^{-1}$

(2) $-82\ kJ\ mol^{-1}$

(3) $-164\ kJ\ mol^{-1}$

(4) $-1312\ kJ\ mol^{-1}$

52. If radiation corresponding to second line of 'Balmer series' of Li^{2+} ion, knocked out electron from first excited state of H-atom, then kinetic energy of ejected electron would be:

(1) 2.55 eV

(2) 4.25 eV

(3) 11.25 eV

(4) 19.55 eV

53. Flocculation value of $BaCl_2$ is much less than that of KCl for sol A and flocculation value of Na_2SO_4 is much less than that of NaBr for sol B. The correct statement among the following is:

(1) Both the sols A and B are negatively charged

(2) Sol A is positively charged arid sol B is negatively charged.

(3) Both the sols A and B are positively charged

(4) Sol A is negatively charged

54. Among the following pairs of complexes, in which case the Δ_0 value is higher for the first one?

(1) $\left[Co(NH_3)_6\right]^{3+}$ and $\left[Co(CN)_6\right]^{3-}$

(2) $[CoF_6]^{3-}$ and $[Co(NH_3)_6]^{3+}$

(3) $[Co(H_2O)_6]^{2+}$ and $[Co(H_2O)_6]^{3+}$

(4) $[Rh(H_2O)_6]^{3+}$ and $[Co(H_2O)_6]^{3+}$

55. The correct order of increasing basicity is

(1) II < III <I

(2) I ≈ III < II

(3) I < II < III

(4) III < I < II

56. For the reaction taking place at certain temperature

$NH_2COONH_4(s) \rightleftharpoons 2NH_3(g) + CO_2(g)$ If equilibrium pressure os 3X bar then $\Delta_t G°$ would be

(1) $-RT\ln 9 - 3RT\ln X$

(2) $RT\ln 4 - 3RT\ln X$

(3) $-3RT\ln X$

(4) None of these

57. Why only As^{3+} gets precipitated as As_2S_3 and not Zn^{2+} as ZnS when H_2S passed through an acidic solution containing As^{3+} and Zn^{2+}?

(1) Solubility product of As_2S_3 is less than that of ZnS

(2) Enough As^{3+} are present in acidic medium

(3) Zinc salt does not ionize in acidc medium

(4) Solubility product changes in presence an acid

58. Osmotic pressure of 0.4% urea solution is 1.64 atm and that of 3.42% cane sugar is 2.46 atm. When the above two solutions are mixed, the osmotic pressure of the resulting solution is:

(1) 0.82 atm

(2) 2.46 atm

(3) 1.64 atm

(4) 4.10 atm

59. For an isothermal reversible expansion process, the value of q can be calculated by the expression

(1) $q = 2.303nRT \log \frac{V_2}{V_1}$

(2) $q = -2.303nRT\log\frac{V_2}{V_1}$

(3) $q = -\mathrm{P}_{exp}nRT\log\frac{V_1}{V_2}$

(4) None of these

60. $(CH_3)_3C-\overset{\overset{O}{\|}}{C}-NH_2 \xrightarrow[(ii)D_2O]{(i)\,OD^-/Br_2}$ Product P is

(1) $(CH_3)_3CNH_2$

(2) $(CH_3)_3CNHD$

(3) $(CH_3)_3CND_2$

(4) No reaction

JIPMER-MBBS-2018-3 Jun-Morning
Physics

61. Dimension of force is

(1) $M^1L^{-1}T^{-2}$

(2) $M^1L^1T^{-2}$

(3) $M^2L^{-1}T^{-2}$

(4) $M^1L^{-1}T^{-1}$

62. Which is wrong dimension

(1) $v = u + at$

(2) $s = vt^2$

(3) $s = \frac{1}{2}at^2$

(4) $E = mc^2$

63. A vernier least count 0.1 mm percentage error in volume of cube of side 30 mm.

(1) 0.3%

(2) 1%

(3) 3%

(4) 0%

64. If current in inductor of 5 mH varying as $I = t^2.e^{-2t}$ then find time after which voltage drop across inductor become zero.

(1) t= 1 sec

(2) t= 3 sec

(3) t= 2 sec

(4) t= 4 sec

65. In YDSE S_1 and S_2 has intensity I and $9I$. Find difference in intensity b/w point which has phase difference of $\pi/2 \text{and} \pi$.

(1) 10 I

(2) 6 I

(3) 8 I

(4) 4 I

66. In YDSE if white light is used then.

(1) except center, there will be spectrum

(2) except center no spectrum any where

(3) spectrum every where

(4) spectrum at center only

67. If 2 bubble of radius r_1 & r_2 are combined then find radius of common surface

(1) $\frac{r_1 r_2}{r_1 + r_2}$

(2) $\frac{r_1 r_2}{r_2 - r_1}$

(3) $\sqrt{r_1 r_2}$

(4) $\frac{r_1 + r_2}{2}$

68. If point charges $Q_1 = 2\times10^{-7}$ C and $Q_2 = 3\times10^{-7}$ C are at 30 cm separation. Find electrostatic force them.

(1) 6×10^{-3} N

(2) 2×10^{-3} N

(3) 3×10^{-3} N

(4) 8×10^{-3} N

69. If in isothermal process Δw work is done by gas, then choose incorrect

(1) $\Delta U = 0$

(2) $\Delta S \neq 0$

(3) $\Delta T = 0$

(4) $\Delta P = 0$

70. If a machine perform 4000 J output work and 1000 J is inside loss due to friction find efficiency = ?

(1) 20%

(2) 25%

(3) 80%

(4) 60%

71. For uranium nucleus. Find relation between mass and volume

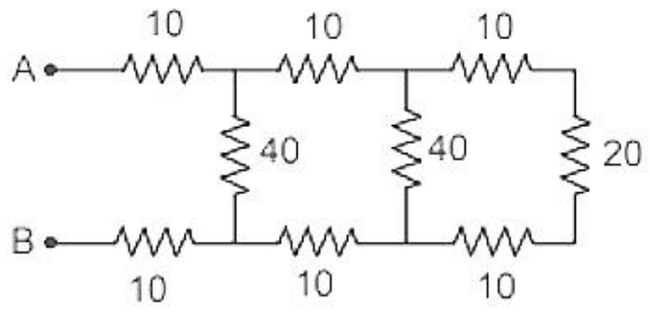
(1) $m \propto v$

(2) $m \propto \sqrt{v}$

(3) $m \propto v^2$

(4) $m \propto \frac{1}{v}$

72. Find R_{net} between A and B



(1) 40

(2) 60

(3) 70

(4) 20

73. A particle is thrown vertically up with speed 6m/s find maximum height achieved

(1) 0.9 meter

(2) 3.6 meter

(3) 1.8 meter

(4) 1 meter

74. A missile is fired at 30° angle from horizontal with 90 m/s find time of flight

(1) 9

(2) 20

(3) 40

(4) 15

75. Two identical capillary tube are tilted in liquid with 45° and 60° from vertical find ratio of length of fluid in capillary

(1) $1:2\sqrt{2}$

(2) $1:2$

(3) $2\sqrt{2}:1$

(4) $1:\sqrt{2}$

76. A real object is on principle axis of concave mirror of focal length 2m object distance from pole is 8m. Find image distance.

(1) 2.66 m

(2) 1.66 m

(3) ∞

(4) 2 m

77. Velocity is given by $v = 4t(1 - 2t)$ then find time at which velocity is maximum

(1) 0.5 sec

(2) 0.25 sec

(3) 0.45 sec

(4) 1 sec

78. Find pressure on swimmer at a depth of 10 m in water

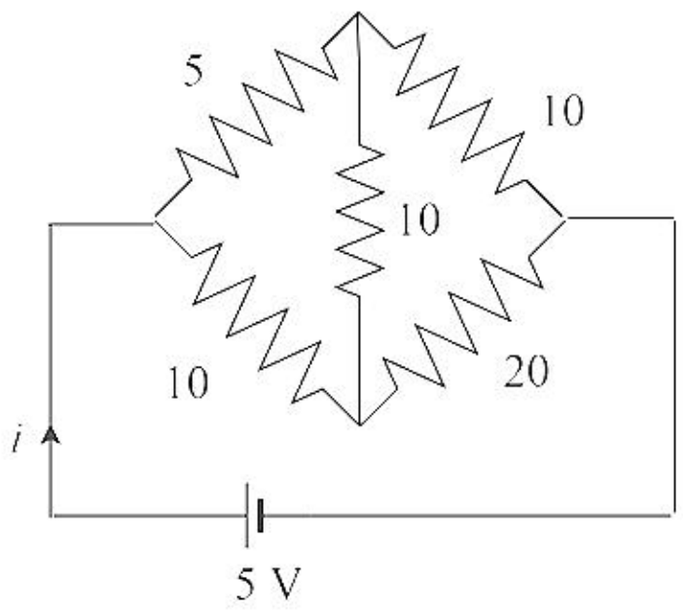
(1) 2 atm

(2) 1 atm

(3) 3 atm

(4) 4 atm

79. Find i= ?



(1) 0.5 Amp

(2) 0.2 Amp

(3) 2 Amp

(4) 0.25 Amp

80. If compressibility of material is 4×10^{-5} per atm, pressure is 100 atm and volume 100 cm3 find a $\Delta V =$

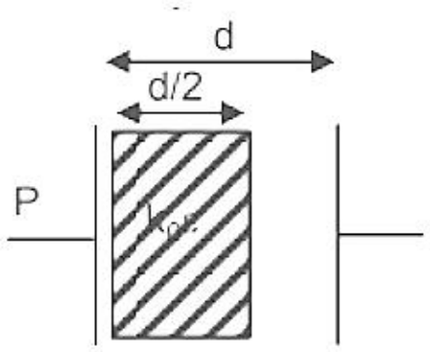
(1) 0.2 cm^3

(2) 0.8 cm^3

(3) 0.4 cm^3

(4) 0.6 cm^3

81. Find a capacitance



(1) $\frac{2kA\varepsilon_0}{d}$

(2) $\frac{2kA\varepsilon_0}{(k+1)d}$

(3) $\frac{(k+1)A\varepsilon_0}{2d}$

(4) $\frac{2kA\varepsilon_0}{(k^2+1)d}$

82. Two parallel wire carries current I_1 and I_2 are separated by distance *d*. Force per unit length of wire is *F*. Then :

(1) $F \propto d$

(2) $F \propto \frac{1}{d}$

(3) $F \propto d^2$

(4) $F \propto \frac{1}{d^2}$

83. Two concentric circular coil of radius 20 cm and 30 cm carries current 2A and 3A respectively in opposite direction then magnetic field at centre will be :-

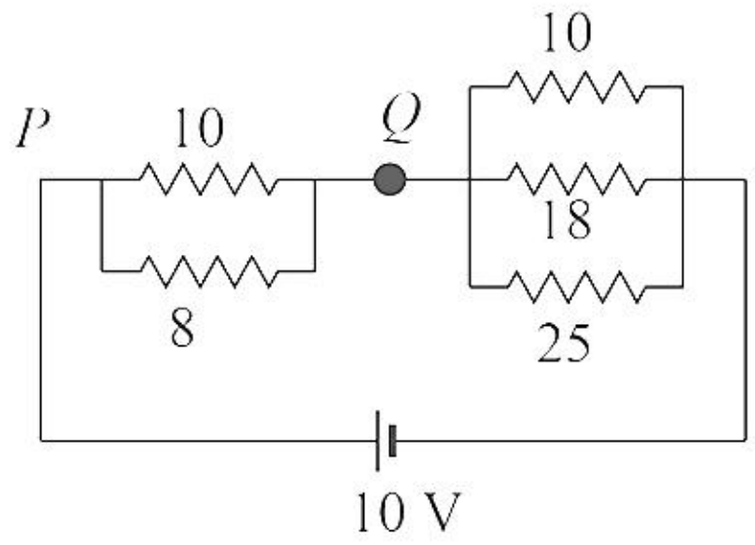
(1) $4\pi \times 10^{-7}$

(2) $2\pi \times 10^{-7}$

(3) 2×10^{-7}

(4) zero

84. $V_P - V_Q = ?$



(1) 6.68 volt

(2) 4.65 volt

(3) 8.72 volt

(4) 7.11 volt

85. A capacitor has capacitance 2F. plate separation 0.5 cm then area of plate

(1) 1130 cm^2

(2) 1130 m^2

(3) 1130 km^2

(4) None of these

86. Pressure in non uniform cross section wire will be least at

(1) where tube diameter is less

(2) where speed is less

(3) where speed is more

(4) pressure is some at each cross section

87. For a permanent magnet, properties of material should be

(1) high retentivity high coercivity

(2) lowretentivity law coercivity

(3) high retentivity low coercivity

(4) low retentivity high coercivity

88. A particle performing SHM for maximum speed 50 m/s so and maximum acceleration = 100 m/s^2 then time period of SHM ?

(1) 1 sec

(2) 2π sec

(3) π sec

(4) 2 sec

89. Two particle are moving in opposite direction with speed v_1 and v_2. What may be their velocity if relative velocity is 6 m/sec

(1) 4.2, 2.4

(2) 4.2, 1.8

(3) 8.4, 3.6

(4) 4.7, 2.8

90. A nuclear of mass number A emits a particle speed of a particle is v then what is recoil speed of nuclease.

(1) $\frac{Av}{v-1}$

(2) v

(3) $\frac{v}{A-1}$

(4) $\left(\frac{A-1}{A}\right)v$

91. Fermer bone has base n average cross section area 100 cm^2 supporting mass of 40 kg of man find average pressure

(1) 4×10^4

(2) 2×10^4

(3) 3×10^4

(4) 5×10^4

92. Two wave in string have same velocity. If linear mass density of string are $\mu_1 = 5, \mu_2 = 20\ T_1 = 40$ then, $T_2 = ?$

(1) 160

(2) 1600

(3) 150

(4) 1500

93. If 2 wire of length L1 and L2 and Young's modulus Y_1 and Y_2 are in series then effective Young's modulus is

(1) $\dfrac{y_1L_1 + y_2L_2}{L_1 + L_2}$

(2) $\dfrac{y_1L_2 + y_2L_1}{L_1 + L_2}$

(3) $\dfrac{y_1y_2(L_1 + L_2)}{L_1 + L_2}$

(4) $\frac{y_1 + y_2}{2}$

94. A positive charge particle is released in electric field in case (a) it is just released and in case (b) it has initial speed v_0 along electric field. If after sometime its kinetic energy in case (a) and (b) are k_1 and k_2 then,

(1) $k_1 > k_2$

(2) $k_1 < k_2$

(3) $k_1 = k_2$

(4) None.

95. Which of the following represents isotope, isobar isotones respectively ?

(1) $\left({}^{1}_{1}H, {}^{4}_{2}He\right)$

(2) $\left({}^{1}_{1}H, {}^{4}_{2}He\right)$

(3) $\left({}_{1}H^{1}, {}_{1}H^{3}\right), \left({}^{1}_{1}H, {}^{4}_{2}He\right), \left({}_{79}x^{197}, {}_{80}x^{190}\right)$

(4) None of these

96. If accelerating voltage of X-ray tube is 13 kV find minimum wavelength of X-ray,

(1) 1 Å

(2) 0.82 Å

(3) 0.95 Å

(4) 1.72 Å

97. If speed of sound in air is 340 m/s and in water 1480 m/s. If frequency of sound is 1000 kHz then find wavelength in water.

(1) 1.48 mm

(2) 2.96 mm

(3) 0.74 mm

(4) 1 mm

98. Loudness of sound defines on

(1) Amplitude

(2) frequency

(3) wavelength

(4) velocity

99. A mass of 200 gm has initial velocity $v_i = 2\hat{i} + 3\hat{j}$ and final velocity $v_f = -2\hat{i} - 3\hat{j}$ find magnitude of change in momentum

(1) $|\Delta\vec{p}| = 0.8\hat{i} - 1.2\hat{j}$

(2) $|\Delta\vec{p}| = 3.04$

(3) $|\Delta\vec{p}| = 2.04$

(4) $|\Delta\vec{p}| = 1.44$

100. A spring of spring constant k is cut into 3 equal part find k of each

(1) $3k$

(2) $k/3$

(3) k

(4) None of these

101. 1000 N force is required to lift a hook and 10000 N force is requires to lift a load slowly. Find power required to lift hook with load with speed $v = 0.5$ m/sec

(1) 5 kW

(2) 5.5 kW

(3) 1.5 kW

(4) 4.5 kW

102. For nuclear reaction, select correct statement for released energy

(1) release energy per mass is more in fusion

(2) release energy per mass is more in fission

(3) release energy per atom is more in fusion

(4) equal in both for per mass and per atom

103. Density of sea water is more than that of fresh water then for a boat floating. What will be true

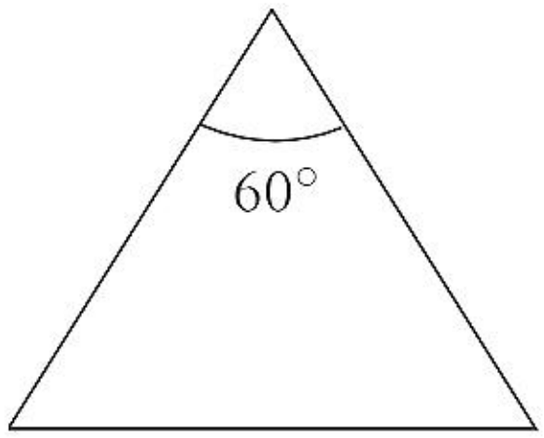
(1) boat will be lower in sea water than fresh water

(2) boat will be lower in fresh water than sea water

(3) boat will be lower at same level in both

(4) none of these

104. If minimum deviation $= 30°$ then speed of light in prism



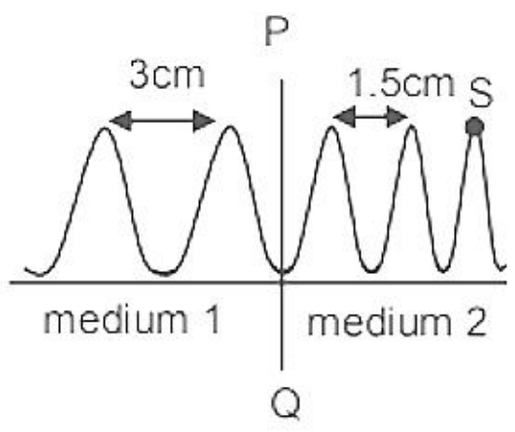
(1) $\frac{3}{\sqrt{2}} \times 10^8$ m/s

(2) $\frac{2}{\sqrt{3}} \times 10^8$ m/s

(3) $\frac{1}{\sqrt{2}} \times 10^8$ m/s

(4) $\frac{2}{3} \times 10^8$ m/s

105. What is the ratio of speed of wave in medium 1 and 2.



(1) 2:1

(2) 1:2

(3) 1:1

(4) 3:1

106. A Cylinder rolls down an inclined plane of inclination 30°, the acceleration of cylinder is

(1) $\frac{g}{3}$

(2) g

(3) $\frac{g}{2}$

(4) $\frac{2g}{3}$

107. A gymnst takes turns with her arms & legs stretched. When she pulls her arms & legs in

(1) The angular velocity decreases

(2) The moment of inertia decreases

(3) The angular velocity stays constant

(4) The angular momentum increases

108. Escape velocity when a body of mass m is thrown vertically from the surface of the earth is v, what will be the escape velocity of another body of mass 4m is thrown vertically

(1) v

(2) $2v$

(3) $4v$

(4) None of these

109. A metallic bar is heated from 0 °C to 100 °C. The coefficient of linear expansion is 10^{-5} K^{-1}. What will be the percentage increase in length?

(1) 0.01%

(2) 0.1%

(3) 1%

(4) 10%

110. A graph is plotted with PV/T on y-axis and mass of the along x-axis for different gases. The graph is

(1) A straight line parallel to x-axis for all the gases

(2) A straight line passing through origin with a slope having a constant value for all the gases

(3) A straight line passing through origin with a slope having different values for different gases

(4) A straight line parallel to y-axis for all the gases.

111. Resonance frequency of LCR series a.c. circuit is f_0. Now the capacitance is made 4 times, then the new resonance frequency will become.

(1) $f_0 / 4$

(2) $2f_0$

(3) f_0

(4) $f_0 / 2$

112. If $\vec{E}$ and $\vec{B}$ represent electric and magnetic field vectors of the electromagnetic waves, then the direction of propagation of the waves will be along

(1) $\vec{B} \times \vec{E}$

(2) $\vec{E}$

(3) $\vec{B}$

(4) $\vec{E} \times \vec{B}$

113. The first line of Balmer series has wavelength 6563 $\mathring{A}$. What will be the wavelength of the first member of Lyman series

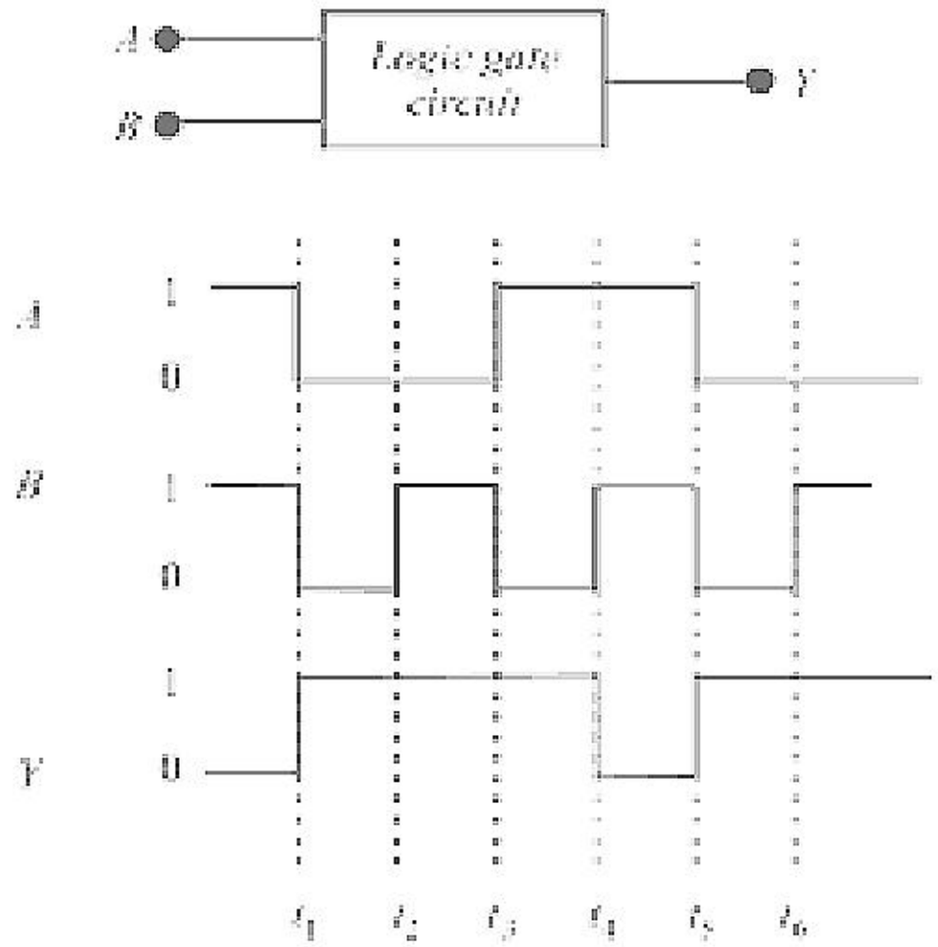
(1) 1215.4 $\mathring{A}$

(2) 2500 $\mathring{A}$

(3) 7500 $\mathring{A}$

(4) 600 $\mathring{A}$

114. The following figure shows a logic gate circuit with two inputs A and B and the output Y. The voltage waveforms of A, B and Y are given



The logic gate is

(1) NAND gate

(2) NOR gate

(3) OR gate

(4) AND gate

115. The moment of inertia of a disc of mass M and radius R about an axis, which is tangential to the circumference of the disc and parallel to its diameter, is

(1) $\frac{3}{2}MR^2$

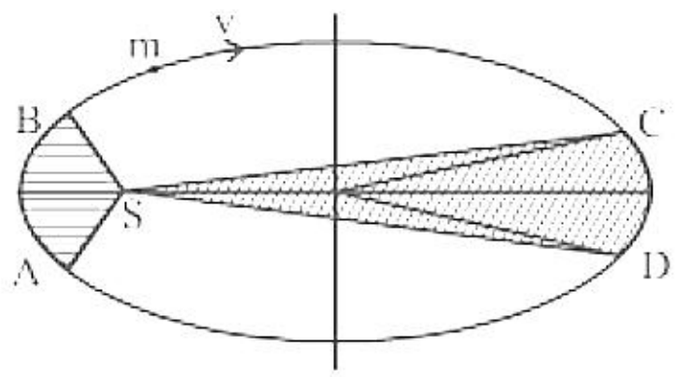
(2) $\frac{2}{3}MR^2$

(3) $\frac{5}{4}MR^2$

(4) $\frac{4}{5}MR^2$

116. The figure shows elliptical orbit of a planet m about the sun S.

The shaded area SCD is twice the shaded area SAB. If t_1 is the time for the planet to move from C to D and t_2 is the time to move from A to B then:



(1) $t_1 = 4t_2$

(2) $t_1 = 2t_2$

(3) $t_1 = t_2$

(4) $t_1 > t_2$

117. A spherical black body with a radius of 12 cm radiates 450 watt power at 500 K. If radius were halved and the temperature doubled, the power radiated in watt would be:

(1) 450

(2) 1000

(3) 1800

(4) 225

118. The molecules of a given mass of gas have a root mean square velocity of 200 ms^{-1} at 27°C and 1.0×10^5 N m^{-2} pressure. When the temperature is 127°C and the pressure 0.5×10^5 Nm^{-2}, the root mean square velocity in ms^{-1} is

(1) $\frac{400}{\sqrt{3}}$

(2) $100\sqrt{2}$

(3) $\frac{100\sqrt{2}}{3}$

(4) $\frac{100}{3}$

119. The primary of a transformer has 400 turns while the secondary has 2000 turns. If the power output from the secondary at 1000 V is 12 kW, what is the primary voltage?

(1) 200 V

(2) 300 V

(3) 400 V

(4) 500 V

120. The transfer ratio β of transistor is 50. The input resistance of a transistor when used in C.E (common emitter) configuration is 1 kΩ. The peak value of the collector A.C current for an A.C. input voltage of 0.01 V peak is

(1) 100 μA

(2) 0.01 mA

(3) 25 mA

(4) 500 μA

JIPMER-MBBS-2018-3 Jun-Morning
Biology

121. Shape of chloroplast of Ulothrix is

(1) Star shaped

(2) Bond shaped

(3) Girdled shaped

(4) Spinal

122. Which one is parasitic algae.

(1) Oedogonium

(2) Cephaleuros

(3) Spirogyra

(4) Cladophera

123. Palmellastatge is present in

(1) Aspergillus

(2) Cystopus

(3) Chlamydomonas

(4) None

124. Payer's patches are present in

(1) Ileum

(2) Jejunum

(3) duodenum

(4) sacculusrotandus

125. What is function of kupffer's cell

(1) Bile secretion

(2) Digestion of lipid

(3) Phagocytic

(4) Digestion of protein

126. Histamine is secreted by

(1) Mast cells

(2) kupffer's cells

(3) oxyntic cells

(4) Neutrophils

127. Which is not a derivative of cholesterol

(1) Vitamin B

(2) Vitamin D

(3) Bile salts

(4) Steroid

128. Rooting plant hormone is

(1) IBA

(2) 2, 4,-D

(3) 2,4,5-T

(4) NAA

129. Conditions required for cyclic photophosphorylation

(1) Aerobic condition, low light intensity

(2) Aerobic condition, optimum light intensity

(3) Aerobic condition, low light intensity

(4) Aerobic condition, optimum light intensity

130. R.Q of malic acid

(1) 1.9

(2) 1.49

(3) 1.33

(4) 1

131. Oxysome is composed of

(1) Lipid + carbohydrates

(2) Lipid + protein

(3) Carbohydrates

(4) Protein

132. Daily requirement of vitamin A for women

(1) 500 microgram

(2) 700 microgram

(3) 900 microgram

(4) 300 microgram

133. Which is function of calcium

(1) Blood clotting

(2) Muscular contraction

(3) Nerve Conduction

(4) All of the above

134. Inhibin is composed of

(1) Glycoprotein

(2) Lipoprotein

(3) Steroid

(4) Amino acid derivative

135. Formation of corpus luteum is induced by

(1) LH

(2) Estrogen

(3) FSH

(4) Progesterone

136. Which is present in urine of pregnant woman

(1) HCG

(2) LH

(3) Estrogen

(4) FSH

137. Poisonous Poison of mushroom inhibits formation of

(1) mRNA

(2) rRNA

(3) tRNA

(4) hnRNA

138. What is ribotide

(1) Ribose + uracil + phosphate

(2) Deoxyribose + uracil + phosphate

(3) deoxyribose + Thymine + phosphate

(4) Ribose + Thymine + phosphate

139. Which is formed in G_2

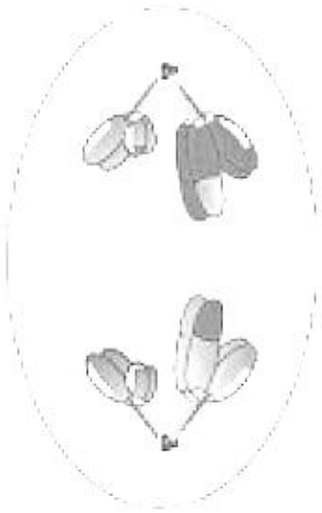
(1) mRNA

(2) rRNA

(3) DNA

(4) tRNA

140.



Above diagram represents

(1) Anaphase-I

(2) Metaphase-I

(3) Telophase-I

(4) Prophase-I

141. Cdk –inhibitor inhibit :

(1) P – 53

(2) P – 21

(3) P – 21

(4) None

142. Cell wall of fungi is composed of:

(1) Chitin

(2) Pectin

(3) Cellulose

(4) Mannans

143. Which motile-stage of protozoa is helpful in feeding?

(1) Pseudopodium

(2) Cilia

(3) Flagella

(4) Tentacles

144. Which one mRNA can be transcripted :

(1) AUG.UGA.UUU

(2) UAA.UAV.UGG

(3) UAG.UGA.UUV

(4) UGA.UUV.UGG

145. Purkinje's fibres are found in :

(1) Heart

(2) Liver

(3) Brain

(4) Lungs

146. Function of hypothalamus is :

(1) Thermoregulation

(2) Water balance

(3) Control of hormone function

(4) All of above

147. Caryopsis is present in :

(1) Wheat

(2) Groundnut

(3) Coconut

(4) Mango

148. Which one is anti-allergic antibody:

(1) Ig A

(2) Ig G

(3) Ig E

(4) Ig D

149. What is role of sterol in cell membrane :

(1) Stability

(2) Communication with other cells

(3) Secretion

(4) Transport

150. AB blood group shows :

(1) Co-dominance

(2) Incomplete dominance

(3) Polygenic inheritance

(4) Pleiotropy

151. During apoptosis why adjust tissues are not inflamed:

(1) Phagocytes or macrophages are not involved.

(2) Process involve killing of cell due to reduced blood supply

(3) DNA of cell doesn't have genes for apoptosis

(4) Basophils and eosinophil play an important role

152. Which is derived from triterpenes

(1) Cholesterol

(2) Growth hormone

(3) Thyroxin

(4) Vitamin B_{12}

153. Non-disjunction in meiosis results in :

(1) Trisomy

(2) Normal diploid

(3) Gene mutation

(4) None

154. XXY genotype shows :

(1) Male

(2) Hermaphrodite

(3) Female

(4) Super female

155. Which of these is incorrect for C_4-plants

(1) kranz anatomy

(2) CO_2 acceptor is PEP

(3) PEPcase in mesophyll

(4) RUBISCO in mesophyll

156. Which is incorrect for chloroplast

(1) Presence in algae and plants

(2) Release O_2

(3) Occurs only in cells with aerobic respiration

(4) None

157. Non-essential amino acid is?

(1) Valine

(2) Arginine

(3) Histidine

(4) Lysine

158. Which of these is an extension of nuclear membrane and involved in secretion out of cell

(1) ER

(2) Golgi body

(3) Ribosome

(4) Lysosome

159. Protein are needed in diet because?

(1) All amino acids are not available in body

(2) During fasting body utilized proteins

(3) Proteins act as building blocks of our body

(4) All of the above

160. Protein uptake in nucleus occurs by

(1) ATP hydrolysis in cytoplasm

(2) GTP hydrolysis in cytoplasm

(3) ATP hydrolysis in nucleus

(4) GTP hydrolysis in nucleus

161. Omega 3 fatty acid is present in?

(1) Sun flower oil

(2) Flax seed oil

(3) Ground nut oil

(4) Butter

162. Which is incorrect for non-disjunction

(1) Homologous chromosomes are not separated in meiosis-I

(2) Sex chromatids are not separated in meiosis-II

(3) Crossing over occurs b/w non sister chromatids in mitosis

(4) Crossing over occurs b/w non sister chromatids in meiosis-I

163. Correct sequence is:

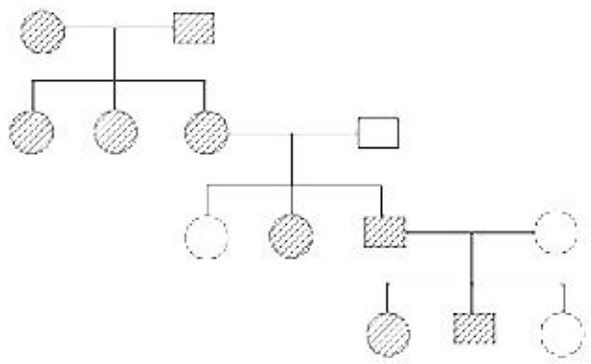
(1) Zygote → cleavage → Morula → Blastula → Gastrula

(2) Cleavage → Zygote → Morula → Blastula → Gastrula

(3) Zygote → Morula → Blastula → cleavage → Gastrula

(4) Zygote → Blastula → Morula → cleavage → Gastrula

164.



(1) Autosomal dominant

(2) X-Linked dominant

(3) Autosomal recessive

(4) X-Linked recessive

165. Which is correct for low glycemic index of food except:

(1) Release glucose slowly

(2) Induce quick release of insulin

(3) harmful for diabetic patient

(4) Adversely affect blood glucose levels

166. Which is used in tissue culture

(1) Explant

(2) Somaclones

(3) Hybridization

(4) None

167. Gene transfer is present in :

(1) Biolistics

(2) Hybridization

(3) Tissue culture

(4) Vegetative propagation

168. Linker-DNA is attached to

(1) H_1

(2) H_2A

(3) H_2B

(4) H_3

169. What is acrosomal reaction?

(1) Contact of sperms with egg

(2) Digestion of zonapellucida

(3) Disintegration of acrosome

(4) Contact of acrosome and nucleus of egg

170. Which is present at 5' end of eukaryotic m-RNA

(1) Poly A tail

(2) Modified C at 5'

(3) 7 mG

(4) Poly C

171. ATCCAG DNA form which mRNA

(1) UAGGUC

(2) TAGGTC

(3)

(4)

172. Loss of water from body occurs by all of the following except

(1) Muscles

(2) Lungs

(3) Kinney

(4) skin

173. Pollen kitt is present in

(1) Anemophilly

(2) Entamophily

(3) Malacophilly

(4) Zoophilly

174. How many molecules of pyruvic acid are formed in glycolysis

(1) 2

(2) 1

(3) 15

(4) 16

175. Molecular formula of chl.b is

(1) $C_{55}H_{70}O_6N_4Mg$

(2) $C_{55}H_{72}O_5N_4Mg$

(3) $C_{55}H_{70}O_5N_4Mg$

(4) $C_{54}H_{70}O_6N_4Mg$

176. Few cnidarians like corals have a skeleton composed of

(1) Calcium hydroxide

(2) Calcium sulphate

(3) Calcium carbonate

(4) Sodium bicarbonate

177. Which one of the following statements is correct?

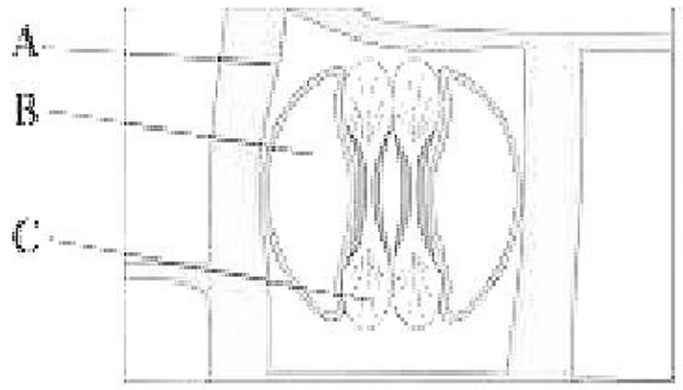
(1) Bulb of Allium cepa is a modified stem

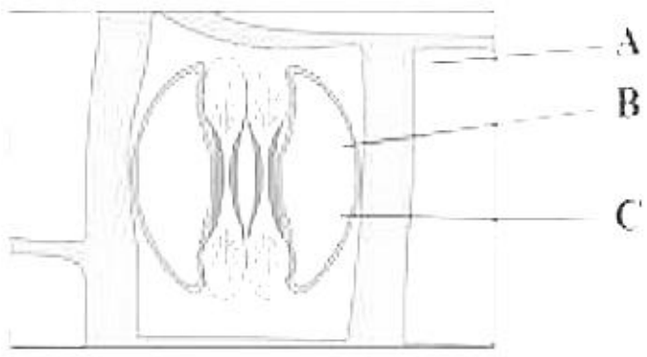
(2) Clovrs of Colocasia is a modified root

(3) Corm of Colocasia is a modified root

(4) Tendril in Vitis vinifera is a modified axillary bud.

178. The given diagrams show stomatal apparatus in dicots and monocots. Which one is correct option for A, B and C?





(1) A-Epidermal cells; B-Subsidary cells; C-chloroplast

(2) A-Guard cells; B-Subsidary cells; C-Stomatal pore

(3) A-Guard cells; B-Epidermal cells; C-Guard cells

(4) A-Epidermal cells; B-Subsidary cells; C-Guard cells

179. Match the epithtial tissues given in column-I with its location given in column-II and choose the correct option

Column I (Epithelial tissues)	**Column II (Location)**
Cuboidal	Epidermis of skin
Ciliated	Inner lining of blood vessels

Columnar	Inner surface of gall bladder
Squamous	Inner lining of fallopian tube
Keratinized	Lining of pancreatic duct squamous

(1) A-V, B-IV, C-II, D-III, E-I

(2) A-III, B-IV, C-V, D-II, E-I

(3) A-V, B-IV, C-III, D-II, E-I

(4) A-III, B-IV, C-V, D-I, E-II

180. Stomata in angiosperms open and close due to

(1) Their genetic constitution

(2) Effect of hormone

(3) Changes of turgor pressure in guard cells

(4) Pressure of gases inside the leaves

JIPMER-MBBS-2018-3 Jun-Morning
English Comprehensive

DIRECTIONS (Qs181-184) : In each of the questions given below, a/an idiom/phrase is given in underline which is then followed by four options which then try to decipher its meaning as used in the sentence. Choose the option which gives the meaning of the idiom/phrase most appropriately in context of the given sentence.

181. The kids had a field day at the carnival

(1) A very tough day

(2) A very boring day

(3) A very enjoyable time

(4) An unpleasant day

182. It's time to go home, let's call it a day.

(1) Finish the work fast

(2) To stop doing something

(3) Move fast

(4) Do or die

183. I am feeling a bit under the weather.

(1) Feeling slightly ill

(2) Feeling great

(3) Attracted towards the nature

(4) Feeling disgusted

184. Scoring 10 runs in 16 balls was a cake walk for the batsman.

(1) Plentiful

(2) Scarcity

(3) Dearth

(4) Defiency

Direction (Qs185-187): In the questions given below, a sentence is given with an underlined word followed by four options. Slect the option that is nearest in meaning to the underlined word.

185. The food was available in profusion.

(1) Plentiful

(2) Scarcity

(3) Dearth

(4) Deficiency

186. She spends her money lavishly

(1) Carefully

(2) Foolishly

(3) Generously

(4) Madly

187. The judge delivered his verdicts at 1 PM.

(1) Liberated

(2) Pronounced

(3) Surrendered

(4) Transferred

Direction(Qs 188-190): In the questions given below, a sentence is given with an underlined word followed by four options. Select the option that is opposite in meaning to the underlined word.

188. She is very serious by temperature

(1) Stupid

(2) Grave

(3) Trivial

(4) Sober

189. He has a fine ear for music.

(1) Smooth

(2) Coarse

(3) Closed

(4) Small

190. There is no likeness between her and her sister.

(1) Disaffinity

(2) Unlikeliness

(3) Unlikelihood

(4) Dissimilarity

Logical &Quantitative Reasoning

---

191. Pointing to Kamal, Sheeba said, "His mother;s brother is the father of my son Akilesh". How is Kamal related to Sheeba?

(1) Niece

(2) Nephew

(3) Aunt

(4) Sister-in-law

192. Rmana walks 5 km towards south and then turns to the right. After walking 3 km, he turns to the ledt and walks 5 km. Now in which direction is he from the starting place?

(1) West

(2) East

(3) South

(4) North

193. Complete the given series by replacing "?": H171, K23L, N290,?

(1) P35R

(2) Q25R

(3) P17R

(4) Q35R

194. In a certain code language, "RUST" is coded as "5642" and "TEAM" is coded as "2783". What group of letters can be formed for the code "364275"

(1) MUESRT

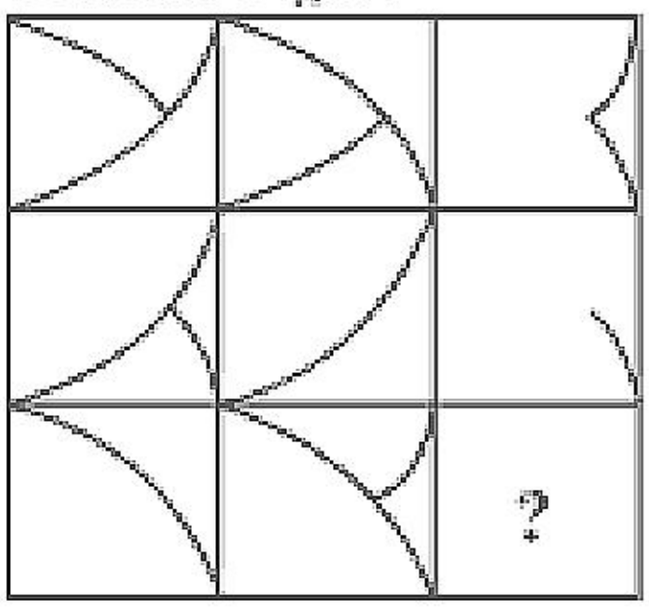
(2) MUESRT

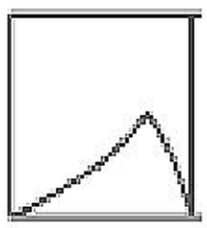
(3) MUSAER

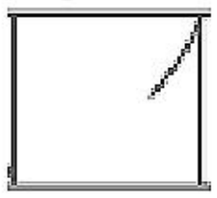
(4) MUSSAR

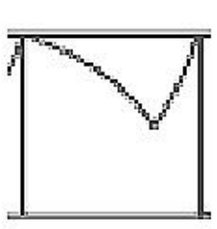
195. Choose the answer figure which completes the problem figure matrix:

Problem Figure



(1) 

(2) 

(3) 

(4) 

196. Statements:

I. All gots kites

II. Some goats are rolls

Choose the conclusion that follows the given statements:

(1) All kites are goats

(2) All rolls are kites

(3) Some rolls are kites

(4) No kites are rolls

197. Rajneesh is 5 ranks ahead of Aman in a class of 46 students. If Aman's rank is twelth from the last, what is Rajnessh's rank from the start?

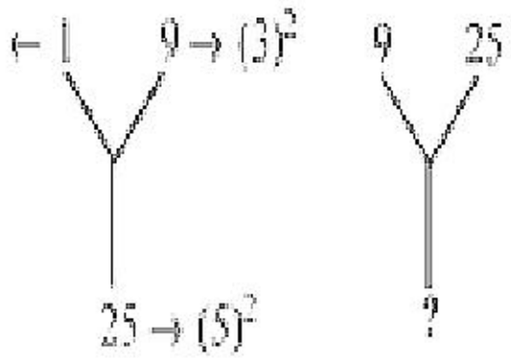
(1) 29

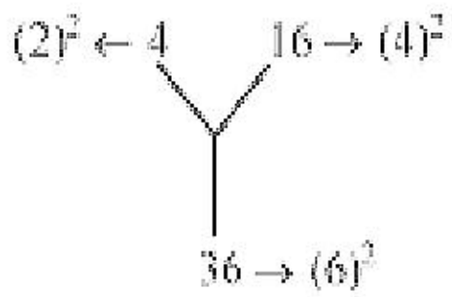
(2) 31

(3) 28

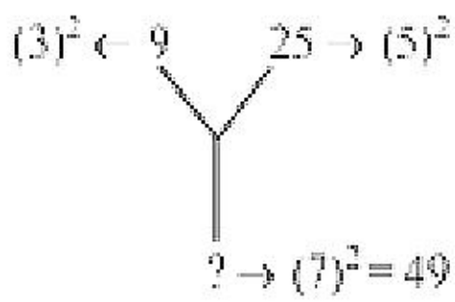
(4) 30

198. Find the missing number





Similarly,



(1) 49

(2) 64

(3) 8

(4) 27

199. Compete the given series

5, 11, 23, 43, ?

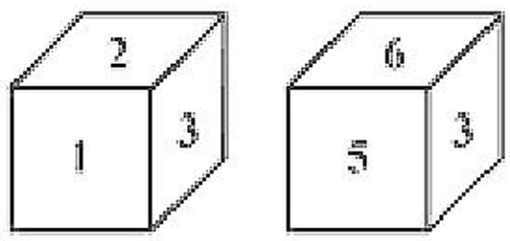
(1) 72

(2) 63

(3) 73

(4) 83

200. Which digit will appear on the face opposite to the face with number 4?



(1) 3

(2) 4

(3) 2

(4) 1