PACE-IIT & MEDICAL

ANSWER KEY FOR MOCK TEST- 25 (FOR 2020 ASPIRANTS) (29th May 2020)

1. (3)	2. (2)	3. (1)	4. (3)	5. (1)
6. (2)	7. (4)	8. (2)	9. (1)	10. (4)
11. (4)	12. (3)	13. (1)	14. (1)	15. (4)
16. (2)	17. (3)	18. (1)	19. (3)	20. (3)
21. (Bonus)	22. (1)	23. (1)	24. (2)	25. (1)
26. (2)	27. (1)	28. (4)	29. (2)	30. (1)
31. (1)	32. (1)	33. (4)	34. (Bonus)	35. (1)
36. (4)	37. (4)	38. (4)	39. (1)	40. (3)
41. (1)	42. (4)	43. (2)	44. (1)	45. (2)
46. (4)	47. (2)	48. (2)	49. (2)	50. (2)
51. (4)	52. (2)	53. (1)	54. (3)	55. (1)
56. (4)	57. (2)	58. (4)	59. (Bonus)	60. (3)
61. (2)	62. (2)	63. (4)	64. (1)	65. (4)
66. (2)	67. (1)	68. (3)	69. (1)	70. (2)
71. (3)	72. (4)	73. (2)	74. (4)	75. (1)
76. (1)	77. (3)	78. (1)	79. (3)	80. (2)
81. (3)	82. (3)	83. (1)	84. (4)	85. (4)
86. (2)	87. (3)	88. (2)	89. (4)	90. (1)
91. (3)	92. (4)	93. (1)	94. (2)	95. (2)
96. (3)	97. (4)	98. (3)	99. (3)	100. (3)
101. (1)	102. (4)	103. (4)	104. (4)	105. (3)
106. (1)	107. (4)	108. (2)	109. (1)	110. (2)
111. (3)	112. (2)	113. (3)	114. (3)	115. (4)
116. (4)	117. (3)	118. (1)	119. (2)	120. (3)
121. (4)	122. (2)	123. (1)	124. (3)	125. (2)
126. (4)	127. (3)	128. (2)	129. (4)	130. (4)
131. (1)	132. (1)	133. (2)	134. (2)	135. (1)
136. (3)	137. (4)	138. (2)	139. (4)	140. (3)
141. (3)	142. (4)	143. (1)	144. (2)	145. (3)
146. (1)	147. (2)	148. (4)	149. (4)	150. (2)
151. (2)	152. (2)	153. (2)	154. (2)	155. (2)
156. (1)	157. (1)	158. (2)	159. (3)	160. (3)
161. (1)	162. (3)	163. (3)	164. (1)	165. (2)
166. (3)	167. (4)	168. (3)	169. (4)	170. (1)
171. (3)	172. (4)	173. (2)	174. (1)	175. (4)
176. (4)	177. (3)	178. (1)	179. (2)	180. (2)

SOLUTIONS

01. (3)

Sol. :

$$f = \frac{1}{2\pi\sqrt{LC}}$$

or $f \propto \frac{1}{\sqrt{C}}$

When capacitor C is replaced by another capacitor C' of dielectric constant K, then

$C' = KC$

$\therefore$ $\frac{f'}{f} = \sqrt{\frac{C}{C'}}$

or $\frac{125000-25000}{125000} = \sqrt{\frac{C}{KC}}$

or $\frac{100}{125} = \frac{1}{\sqrt{K}}$

or $K = \left(\frac{125}{100}\right)^2 = 1.56$

02. **(2)**

Sol. :

Here, mass of particle, $m = 2 \times 10^{-5} Kg$

Charge of a particle, $q = 4 \times 10^{-3} C$

Electric field, $E = 5\ V\ m^{-1}$

Force on a charged particle in a uniform electric field is

$F = qE$

$\therefore$ Acceleration of the particle, $a = \frac{qE}{m}$

$$= \frac{4 \times 10^{-3} \times 5}{2 \times 10^{-5}} = 10^3 ms^{-2}$$

Let v be velocity of particle after 10 s

As $v = u + at$

$\therefore v = at = (10^3 ms^{-2})(10\ s) = 10^4 ms^{-1}\quad [u = 0]$

Kinetic energy of a particle after 10 s is

$$K = \frac{1}{2}mv^2 = \frac{1}{2} \times 2 \times 10^{-5} \times 10^4 \times 10^4 = 10^3\ J$$

03. **(1)**

Sol. :

$V = E_1 t_1 + E_2 t_2$

$$= \frac{\sigma t_1}{K_1 \varepsilon_0} + \frac{\sigma t_2}{K_2 \in_0} = \frac{Q}{A \in_0}\left(\frac{t_1}{K_1} + \frac{t_2}{K_2}\right)$$

04. **(3)**

Sol. :

Flux coming out of the cube $\phi_1 = \frac{\lambda . a\sqrt{3}}{\varepsilon_0}$ ...(i)

And from sphere $\phi_1 = \frac{\lambda . 2a}{\varepsilon_0}$ ...(ii)

$\therefore \frac{\phi_1}{\phi_2} = \frac{\sqrt{3}}{2}$

05. **(1)**

Sol. :

$\frac{1}{2} mv^2 = \frac{kQq}{r_1}$

$\frac{1}{2} m(4v^2) = \frac{kQq}{r_2}$

From Eqs.(i) and (ii), we get

$\frac{r_1}{r_2} = 4$

$r_2 = \frac{r}{4}$

06. **(2)**

Sol. ;

$\frac{N_s}{N_p} = \frac{i_p}{i_s}$ or $\frac{25}{1} = \frac{i_p}{2} \Rightarrow i_p = 50\ A$

07. **(4)**

Sol. :

$\phi = NBA \cos\theta = 10\ Ba^2 \cos\omega t$

$e = -\frac{d\phi}{dt} = -\frac{d}{dt}(10\ Ba^2 \cos\omega t) = 10\ Ba^2 \omega \sin\omega t$

08. **(2)**

Sol. :

$$\lambda = \frac{0.693}{T_{1/2}} = \frac{0.693}{20} = 0.03465$$

Now time of decay $t = \frac{2.303}{\lambda} \log \frac{N_0}{N}$

$$\Rightarrow t_1 = \frac{2.303}{0.03465} \log \frac{100}{67} = 11.6 \text{ min}\, min$$

and $t_2 = \frac{2.303}{0.03465} \log \frac{100}{33} = 32 min$

Thus time difference between points of time

$= t_1 - t_2 = 32 - 11.6 = 20.4\, min = 20\, min$

09. (1)

Sol. ;

Here, $n_f = 1, n_i = n$

$$\frac{1}{\lambda} = R\left(\frac{1}{1^2} - \frac{1}{n^2}\right)$$

$$\Rightarrow \quad \frac{1}{\lambda} = R\left(1 - \frac{1}{n^2}\right) \quad ..(i)$$

or $\frac{1}{\lambda R} = 1 - \frac{1}{n^2}$ or $\frac{1}{n^2} = 1 - \frac{1}{\lambda R}$

or $n = \sqrt{\frac{\lambda R}{\lambda R - 1}}$

10. (4)

Sol. :

From $E = W_0 + \frac{1}{2} m v_{\max}^2$

$$\Rightarrow 2h\nu_0 = h\nu_0 + \frac{1}{2} m v_1^2 \Rightarrow h\nu_0 = \frac{1}{2} m v_1^2 \quad ... (i)$$

and $5h\nu_0 = h\nu_0 + \frac{1}{2} m v_2^2 \Rightarrow 4h\nu_0 = \frac{1}{2} m v_2^2$ ...(ii)

Dividing equation (ii) by (i) $\left(\frac{v_2}{v_1}\right)^2 = \frac{4}{1}$

$\Rightarrow v_2 = 2v_1 = 2 \times 4 \times 10^6 = 8 \times 10^6 m/s$

11. (4)

Sol. :

$$\lambda = \frac{12375}{(40 \times 10^3)} = 0.309\text{Å} \approx 0.31\text{Å}$$

12. (3)

Sol. :

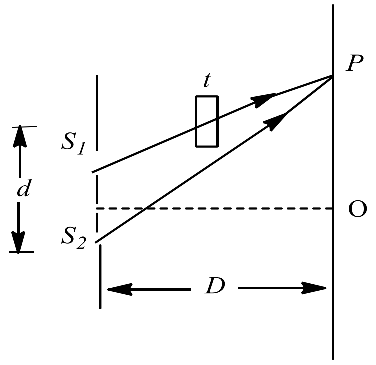
When the arrangement is dipped in water,

$$\beta' = \frac{\beta}{\mu} = \frac{x}{4/3} = \frac{3}{4} x = 0.75x$$

13 (1)

Sol. :

When a mica sheet is introduced in the path of one of the two interfering beams, then entire fringe pattern is displaced towards the beam is the path of which plate is introduce, but fringe width is not changed.



$x_0 = \frac{D}{d}(\mu - 1)t$ ... (i)

Also fringe width is

$W = \frac{D\lambda}{d}$

$\therefore \frac{W}{\lambda} = \frac{D}{d}$ ... (ii)

Using Eq. (ii) we get Eq. (i) as

$x_0 = \frac{W}{\lambda}(\mu - 1)t$

Given, $x_0 = 1.89 \times 10^{-3}$m, $W = 0.431 \times 10^{-3}$m,

$\mu = 1.59$, $\lambda = 5.89 \times 10^{-7}$m.

$1.89 \times 10^{-3} = \frac{0.431 \times 10^{-3}}{5.89 \times 10^{-7}}(1.59 - 1)t$

$\Rightarrow \quad t = \frac{5.89 \times 10^{-7} \times 1.89 \times 10^{-3}}{0.431 \times 0.59 \times 10^{-3}}$

$\Rightarrow \quad t = 4.38 \times 10^{-6}$m

14. (1)

Sol.:

$L_D = v_o + u_e$ and for objective lens $\frac{1}{f_o} = \frac{1}{v_o} - \frac{1}{u_o}$

Putting the values with proper sign convention

$\frac{1}{+2.5} = \frac{1}{v_o} - \frac{1}{(-3.75)} \Rightarrow v_o = 7.5\ cm$

For eye lens $\frac{1}{f_e} = \frac{1}{v_e} - \frac{1}{u_e}$

$\Rightarrow \frac{1}{+5} = \frac{1}{(-25)} - \frac{1}{u_e} \Rightarrow u_e = -4.16\ cm$

$\Rightarrow |u_e| = 4.16\ cm$

Hence $L_D = 7.5 + 4.16 = 11.67\ cm$

15. **(4)**

Sol. :

Answer (4)

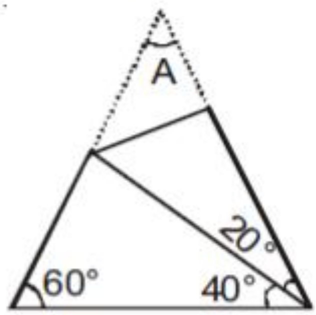
The combination will behave as a prism of refracting angle A = 60°

For minimum deviation $r_1 = r_2 = 30°$

$$\Rightarrow \frac{\sin i}{\sin r_1} = \sqrt{2}$$

$$\Rightarrow \sin i = \frac{1}{\sqrt{2}}$$

$$i = 45°$$



16. **(2)**

Sol. :

Initial momentum of surface

$$P_i = \frac{E}{C}$$

Where, c = velocity of light (constant).

Since, the surface is perfectly, reflecting, so the same momentum will be reflected completely.

Final momentum

$P_f = \frac{E}{c}$ (negative value)

∴Change in momentum

$\Delta p = p_f - p_i$

$$= -\frac{E}{c} - \frac{E}{c} = -\frac{2E}{c}$$

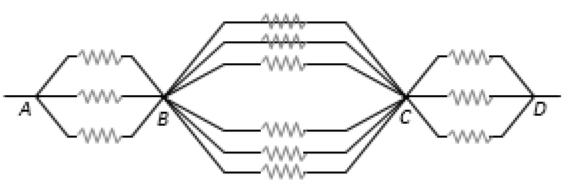
Thus , momentum transferred to the surface is

$\Delta p' = |\Delta p| = \frac{2E}{c}$

17. **(3)**

Sol.:

The given circuit can be simplified as follows

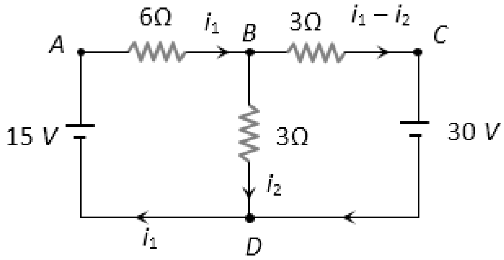


$\therefore R_{AD} = \frac{5R}{6}$

18. **(1)**

Sol. :

The current in the circuit are assumed as shown in the fig.



Applying KVL along the loop $ABDA$, we get

$-6i_1 - 3\ i_2 + 15 = 0$ or $2i_1 + i_2 = 5$ ....(i)

Applying KVL along the loop $BCDB$, we get

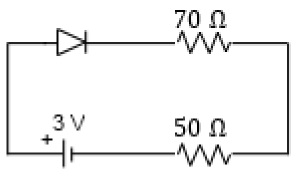
$-3(i_1 - i_2) - 30 + 3i_2 = 0$ or $-i_1 + 2i_2 = 10$ ....(ii)

Solving equation (i) and (ii) for i_2, we get $i_2 = 5\ A$

19. **(3)**

Sol. :

In the circuit the upper diode D_1 is reverse biased and the lower diode D_2 is forward biased. Thus there will be no current across upper diode junction. The effective circuit will be as shown in figure.



Total resistance of circuit

$R = 50 + 70 + 30 = 150\ \Omega$

Current in circuit, $I = \frac{V}{R} = \frac{3}{150} = 0.02$ A.

20. **(3)**

Sol.:

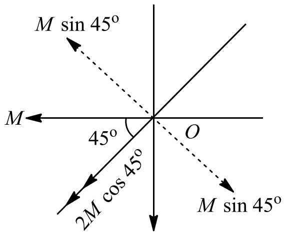
$$\left[\frac{1}{2} \epsilon_0\ E^2\right] = [\text{Energy density}]$$

$$= \frac{ML^2T^{-2}}{L^3} = ML^{-1}T^{-2}$$

21. **(1)**

Sol.:

Resolving the magnetic moments along OP and perpendicular to OP, figure we find that component OP perpendicular OP cancel out. Resultant magnetic moment along OP is $=$ $M\cos 45° + M\cos 45°$



$= 2\,M\cos 45° = \dfrac{2M}{\sqrt{2}} = \sqrt{2}\,M$

The point P lies on axial line of magnet of moment

$= \sqrt{2}\,M$

$\therefore B = \dfrac{\mu_0}{4\pi}\dfrac{2(\sqrt{2}\,M)}{d^3}$

22. **(1)**

Sol. :

For any angle theta in between 0 deg to 180 deg, magnitude of resultant vector lies in between maximum A + B and minimum A - B

23. **(1)**

Sol. :

Given, $r = (20/\pi)\text{m}$

$v = 80\text{ m/s}$

$\theta = 2\text{ rev} = 4\pi\text{ rad}$

$\omega_0 = 0$

From the equation

$\omega^2 = \omega_0^2 + 2\alpha\theta$, we have

$\omega^2 = 2\alpha\theta$

or $\frac{v^2}{r^2} = 2\cdot\frac{a}{r}\theta$

or $a = \frac{v^2}{2r\theta} = \frac{(80)^2}{2\times(20/\pi)\times 4\pi}$

$= 40\text{ ms}^{-2}$

24. **(2)**

Sol. :

The value of acceleration due to gravity at a height h reduces to

$= 100 - 36 = 64\% = \dfrac{64}{100}\text{g}$

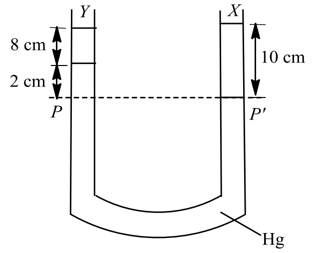
$\therefore \dfrac{64}{100}\text{g} = \dfrac{\text{g}R^2}{(R+h)^2}$

or $\frac{8}{10} = \frac{R}{R+h}$ or $h = \frac{R}{4}$

25. **(1)**

Sol. :

As shown in figure, in the two arms of a tube pressure remains same on surface *PP'*.



Hence, $8 \times \rho_y \times g + 2 \times \rho_{\text{Hg}} \times g = 10 \times \rho_x \times g$

$\therefore 8\rho_y + 2 \times 13.6 = 10 \times 3.36$

or $\rho_y = \frac{36.6 - 27.2}{8} = 0.8 \text{ g cc}^{-1}$

26. **(2)**

Sol. :

$V = \frac{\pi p r^4}{8 \eta l}, ie, V \propto r^4$

$\frac{V'}{V} = \frac{(a/2)^4}{a^4} = \frac{1}{16} \text{ or } V' = \frac{V}{16} = \frac{16}{16} = 1 \text{ cm}^3$

27. **(1)**

Sol. :

Work done = surface tension × increase in area

$= 72 \times [10 \times 0.7 - 10 \times 0.5] \times 2$

$= 288$ erg

28. **(4)**

Sol. :

Answer (4)

$\frac{\text{Lateral strain}}{\text{Longitudinal strain}} = \eta$

$\frac{\Delta r / r}{\Delta l / l} = 0.5$

Substitute $\Delta r/r = 2/100$

$\frac{\Delta l}{l} = \frac{4}{100}$

$\therefore$ % increase $= \frac{\Delta l}{l} \times 100 = 4\%$

$\because A \propto r^2$

So $\frac{\Delta A}{A} = \frac{2\Delta r}{r}$

$\frac{4}{100} = 2 \times \frac{\Delta r}{r}$

$\frac{2}{100} = \frac{\Delta r}{r}$

29. **(2)**

Sol. :

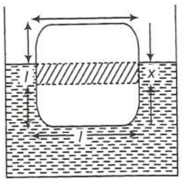
Let at any instant, cube is at a depth x from the equilibrium position then net force acting on the cube = upthrust on the portion of length x

$$F = -\rho l^2 x g = -\rho l^2 g x \quad \text{...(i)}$$

Negative sign shows that, force is opposite to x. Hence equation of SHM

$$F = -kx \quad \text{...(ii)}$$

Comparing Eqs. (i) and (ii)



$k = \rho l^2 g$

$T = 2\pi\sqrt{\frac{m}{k}}$

$= 2\pi\sqrt{\frac{l^3 d}{\rho l^2 g}} = 2\pi\sqrt{\frac{ld}{\rho g}}$

30. **(1)**

Sol. :

The magnetic field in between because of each will be in opposite direction

$$B_{\text{in between}} = \frac{\mu_0 i}{2\pi x}\,\hat{\mathbf{j}} - \frac{\mu_0 i}{2\pi\,(2d - x)}\,(-\hat{\mathbf{j}})$$

$$= \frac{\mu_0 i}{2\pi}\left[\frac{1}{x} - \frac{1}{2d - x}\right]\,(\hat{\mathbf{j}})$$

At $x = d, B_{\text{in between}} = 0$

For $x < d, B_{\text{in between}} = (\hat{\mathbf{j}})$

For $x > d, B_{\text{in between}} = (-\hat{\mathbf{j}})$

Towards x, net magnetic field will add up and direction will be $(-\hat{\mathbf{j}})$.

Towards x', net magnetic field will add up and direction will be $(-\hat{\mathbf{j}})$.

31. **(1)**

Sol. :

$$\vec{\mathbf{F}} = \frac{\partial U}{\partial x}\hat{\mathbf{i}} - \frac{\partial U}{\partial y}\hat{\mathbf{j}} = 7\hat{\mathbf{i}} - 24\hat{\mathbf{j}}$$

$$|\vec{\mathbf{F}}| = \sqrt{(7)^2 + (-24)^2} = 25 \text{ unit}$$

32 . **(1)**

33 . **(4)**

Sol. :

Given, the speed of sound $v = 330\ ms^{-1}$

Velocity of both trains $=30\ ms^{-1}$

$(\because v_o = v_s = 20ms^{-1})$

And frequency =600 Hz

When both trains are moving towards each other then, apparent frequency

$n' = n\left[\frac{v + v_o}{v - v_s}\right]$

$= 600\left[\frac{330 + 30}{330 - 30}\right]$

$= 600\left[\frac{360}{300}\right]$

n'=720 Hz

34 . **(1)**

Sol. :

For centre of mass,

$$x_{cm} = \frac{2 \times 1 + 4 \times 1 + 4 \times 0}{2 + 4 + 4} = \frac{6}{10} = \frac{3}{5}$$

$$y_{cm} = \frac{2 \times 0 + 4 \times 1 + 4 \times 1}{2 + 4 + 4} = \frac{8}{10} = \frac{4}{5}$$

$\therefore$ Coordinate for $cm = \left(\frac{3}{5}\hat{\imath}, \frac{4}{5}\hat{\jmath}\right)$

Where $\hat{\imath}$ and $\hat{\jmath}$ are unit vector along x and y axis

35. **(1)**

Sol. :

$L = \sqrt{2EI} = \sqrt{2 \times 10 \times 8 \times 10^{-7}} = 4 \times 10^{-3} kg\ m^2/s$

36 . **(4)**

Sol. :

If M mass of the square plate before cutting the holes, then mass of portion of each hole,

$m = \frac{M}{16R^2} \times \pi R^2 = \frac{\pi}{16}\ M$

$\therefore$ Moment of inertia of remaining portion

$I = I_{\text{square}} - 4I_{\text{hole}}$

$= \frac{M}{12}(16R^2 + 16R^2) - 4\left[\frac{mR^2}{2} + m\left(\sqrt{2}R\right)^2\right]$

$= \frac{M}{12} \times 32R^2 - 10mR^2$

$= \frac{8}{3}MR^2 - \frac{10\pi}{16}MR^2\ I = \left(\frac{8}{3} - \frac{10\pi}{16}\right)MR^2$

37 . **(4)**

Sol. :

$r.m.s.$ velocity does not depend upon pressure

38 . **(4)**

Sol. :

Answer (4)

Cylinder *A*

Free piston *i.e.*, at constant pressure

Cylinder *B*

Fixed piston *i.e.*, at constant volume

$\Delta Q = \Delta U$

$nC_P\Delta T = nC_V\Delta T'$

$C_PT_0 = C_V(\Delta T)'$

$$\Delta T' = \frac{C_P}{C_V}T_0 = \gamma T_0 = \frac{5}{3}T_0$$

39 . **(1)**

Sol. :

Answer (1)

Heat at constant pressure

$\Delta Q = nC_P\Delta T$

Heat for doing work

$\Delta W = nR\Delta T$

Then $\frac{\Delta W}{\Delta Q} = \frac{nR\Delta T}{nC_P\Delta T}$

$$\frac{\Delta W}{800} = \left(\frac{\gamma - 1}{\gamma}\right)$$

$$\frac{\Delta W}{800} = 1 - \frac{1}{\gamma}$$

$$\frac{\Delta W}{800} = 1 - \frac{3}{4}$$

$\Delta W = 200$ cal

40 . **(3)**

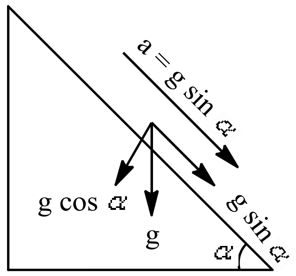
Sol. :

$E \propto T$

41 . **(1)**

Sol. :

Time period $T = 2\pi\sqrt{\frac{l}{g_{\text{eff}}}}$



$$T = 2\pi\sqrt{\frac{l}{g\cos\alpha}}$$

42 . **(4)**

Sol. :

Net download force = Weight – Friction

$$\therefore ma = 25 \times 9.8 - 2 \Rightarrow a = \frac{25 \times 9.8 - 2}{25} = 9.72\ m/s^2$$

43 . **(2)**

Sol. :

$F = \frac{m(v-u)}{t} = \frac{0.15[20-(-10)]}{0.1} = \frac{0.15\times30}{0.1} = 45\text{N}$

44 . **(1)**

Sol. :

Heat absorbed by the system at constant pressure

$Q = nc_p\Delta T$

Change in internal energy $\Delta U = nc_v\Delta T$

$W = Q - \Delta U$

$\therefore \ \frac{W}{Q} = \frac{Q - \Delta U}{Q} = 1 - \frac{\Delta U}{Q}$

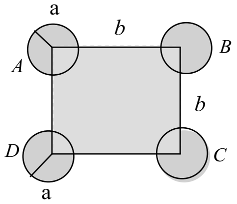
$= 1 - \frac{nc_v\Delta T}{nc_p\Delta T} = 1 - \frac{c_v}{c_p}$

$= \left(1 - \frac{1}{\gamma}\right)$

45 . **(2)**

Sol. :

We calculate moment of inertia of the system about AD



Moment of inertia of each of the sphere A and D about

$$AD = \frac{2}{5}\,Ma^2$$

Moment of inertia of each of the sphere B and C about AD

$= \left(\frac{2}{5}Ma^2 + Mb^2\right)$

Using theorem of parallel axes

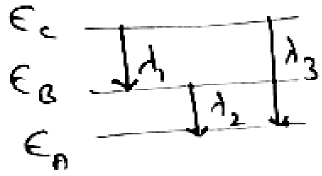
$\therefore$ Total moment of inertia

$I = \left(\frac{2}{5}Ma^2\right) \times 2 + \left(\frac{2}{5}Ma^2 + Mb^2\right) \times 2$

$= \frac{8}{5}Ma^2 + 2Mb^2$

46. (4)

Sol. :



$E_{C\to A} = E_{C\to B} + E_{B\to A}$

$\frac{hc}{\lambda_3} = \frac{hc}{\lambda_1} + \frac{hc}{\lambda_2}$

$= \frac{1}{\lambda_3} = \frac{1}{\lambda_1} + \frac{1}{\lambda_2}$

$\Rightarrow \frac{1}{\lambda_3} = \frac{\lambda_1 + \lambda_2}{\lambda_1\lambda_2} \rightarrow \lambda_3 = \frac{\lambda_1\lambda_2}{\lambda_1 + \lambda_2}$

47. (2)

Sol. :

It forms Complex $[Ag(NH_3)_2]Br$

48. (2)

49. (2)

50. (2)

51. (4)

52. (2)
Sol. :

- OH gp is Acid Sensitive group.

53. (1)
Sol. :

Aldol condensation

54. (3)

55. (1)

56. (4)

57. (2)

58. (4)

59. (1)

60. (3)
Sol. :

Haloform test.

61. (2)
Sol. :

Used for prep^n of 1° amines

62. (2)

63. (4)

64. (1)
Sol. :

It has Acidic Hydrogens

65. (4)
Sol. :

Due to presence of more Electron withdrawing grps.

66. (2)

67. (1)

68. (3)

Sol. :

Doesnot have Acidic Hydrogen

69. (1)

70. (2)

71. (3)

72. (4)

73. (2)

74. (4)

75. (1)

Sol. :

$\Delta T_b = i K_b m$

$T_s - T_0 = \Delta T_b$.

76. (1)

77. (3)

Sol. :

$N = \frac{W}{Eq\,wt} \times \frac{1000}{V(ml)}$

78. (1)

79. (3)

Sol. :

$$k = A \cdot e^{-E_a/RT}$$

$$\frac{E_a}{R} = 40000 \quad (R = 2\ cal)$$

80. (2)

81. (3)

82. (3)

Sol. :

A → B (Isochoric)

B → C (Isothermal)

C → A (Isobaric)

83. (1)

Sol. :

$$\Delta G = \Delta H - T\Delta S$$

$$y = c + mx$$

$\Delta H = c$

$m = -\Delta S$ & from intercept $c > 0 \Rightarrow \Delta H > 0$

$m < 0 \Rightarrow -\Delta S < 0$

$\Rightarrow \Delta S > 0$

84. (4)

Sol. :

$$\Delta G_3^\circ = \Delta G_1^\circ + \Delta G_2^\circ \quad (\Delta G^\circ = -nFE^\circ_{cell})$$

85. (4)

86. (2)

Sol. :

$$U_{mp} = \sqrt{\frac{2RT}{m}}$$

87. (3)

88. (2)

89. (4)

90. (1)

Sol. :

$MgCO_3$ &
$FeCO_3$

91. (3)

92. (4)

93. (1)

94. (2)

95. (2)

96. (3)

97. (4)

98. (3)

99. (3)

100. (3)

101. (1)

102. (4)

103. (4)

104. (4)

105. (3)

106. (1)

107. (4) If child has blood group O and father has blood group B
The genotype of father will be Ibi

108. (2)

109. (1)

110. (2)

111. (3)

112. (2)

113. (3) rRNA is synthesized in Nucleolus

114. (3)

115. (4)

116. (4)

117. (3)

118. (1)

119. (2)

120. (3)

121. (4)

122. (2)

123. (1)

124. (3)

125. (2)

126. (4)

127. (3)

128. (2)

129. (4)

130. (4)

131. (1)

132. (1)

133. (2)

134. (2)

135. (1)

136. (3)

137. (4)

138. (2) Flemming coined the term chromatin

139. (4)

140. (3)

141. (3)

142. (4)

143. (1)

144. (2)

145. (3)

146. (1)

147. (2)

148. (4)

149. (4)

150. (2)

151. (2)

152. (2)

153. (2)

154. (2)

155. (2)

156. (1)

157. (1)

158. (2)

159. (3)

160. (3)

161. (1)

162. (3)

163. (3)

164. (1)

165. (2)

166. (3)

167. (4)

168. (3)

169. (4)

170. (1)

171. (3)

172. (4)

173. (2)

174. (1)

175. (4)

176. (4)

177. (3)

178. (1)

179. (2)

180. (2)