Aakash
Medical | IIT-JEE | Foundations
(Divisions of Aakash Educational Services Limited)

Regd. Office : Aakash Tower, 8, Pusa Road, New Delhi-110005; Ph.: 011-47623456

MM : 720

Mock Test for NEET-2019
Test-II

Time : 3 Hrs.

ANSWERS

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

Code - B

MM : 720

Mock Test for NEET-2019
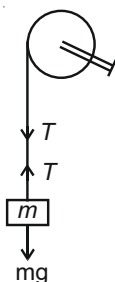# Test-11

Time : 3 Hrs.

Hints and Solutions

PHYSICS

1. Answer (4)
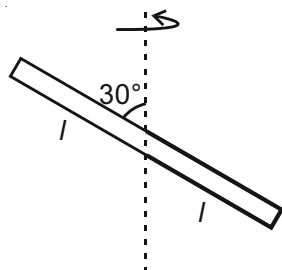
$$I = 2\left(\frac{m}{2}\right)\frac{l^2}{3}\sin^2 30°$$

$$= \frac{ml^2}{12}$$

2. Answer (1)

$$mg - T = ma$$

$$T \times r = I\frac{a}{r}$$

$$T = \frac{Ia}{r^2}$$

$$a = \left(\frac{mgr^2}{mr^2 + I}\right)$$

$$v = \sqrt{\frac{2mgr^2}{(mr^2 + I)}h}$$

$$\omega = \frac{v}{r}$$

$$\omega = \sqrt{\frac{2mgh}{mr^2 + I}}$$

3. Answer (3)

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

$$T_1 = 2\pi\sqrt{\frac{l}{g - \frac{g}{2}}}$$

$$T_1 = 2\pi\sqrt{\frac{2l}{g}}$$

$$\frac{T}{T_1} = \frac{1}{\sqrt{2}}$$

$$T_1 = 2\sqrt{2} \ s$$

4. Answer (2)

$$f_1 = \frac{1}{2l}\sqrt{\frac{T}{\mu}}$$

$$\frac{f_1}{f_2} = \sqrt{\frac{T_1}{T_2}}$$

$$\frac{400}{800} = \sqrt{\frac{80}{T_2}}$$

$$\frac{1}{4} = \frac{80}{T_2}$$

$T_2 = 320$ N

$T_2 = 32$ kg-weight

5. **Answer (1)**

$$f = f_1 - f_2$$

$$f = 308 - 300$$

$$f = 8 \text{ Hz}$$

$$T = \frac{1}{8} \text{ s}$$

Time taken maxima to minima

$$t = \frac{T}{2}$$

$$= \frac{1}{16} \text{ s}$$

6. **Answer (2)**

$$\omega = 2\pi f$$

$$= 2\pi \times 4 = 8\pi$$

$$k = \frac{2\pi}{\lambda}$$

$$k = \frac{2\pi}{\frac{1}{2}}$$

$$k = 4\pi$$

$\therefore$ $A = 0.2$ m

$$y = 0.2 \sin(4\pi x + 8\pi t)$$

7. **Answer (4)**

$$3P_0 = P_0 + \rho g h$$

$$\rho g h = 2P_0$$

$$P_1 = \frac{\rho g h}{3}$$

$$= \left(\frac{2P_0}{3}\right)$$

$$P_{net} = P_0 + \frac{2P_0}{3} = \frac{5P_0}{3}$$

8. **Answer (1)**

$$a = g\sin\theta - \mu g\cos\theta$$

$$a = 10 \times \frac{3}{5} - 0.5 \times 10 \times \frac{4}{5}$$

$$\boxed{a = 2\text{m/s}^2}$$

9. **Answer (2)**

$$\frac{P}{I} = \frac{R}{100 - I}$$

$$R = \frac{35}{13}$$

New resistance,

$$P' = (P + x)$$

$$P' = (5 + x)$$

$$\frac{P'}{70} = \frac{R}{30} \Rightarrow P' = 6.3 \ \Omega$$

$$5 + x = 6.3 \Rightarrow x = 1.3 \ \Omega$$

10. **Answer (2)**

$$\frac{\Delta P}{P} \times P = \frac{1}{2}\frac{\Delta a}{a} \times 100 + 2\frac{\Delta b}{b} \times 100 + 2\frac{\Delta c}{c} \times 100 + 2\frac{\Delta d}{d}$$

$$= \frac{1}{2} \times 4 + 2 \times 1 + 2 \times \frac{1}{2} + 2 \times 2$$

$$= 2 + 2 + 1 + 4$$

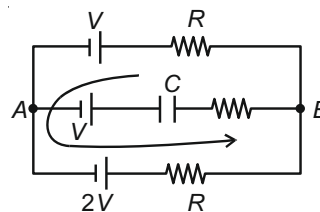$$= 9\%$$

11. **Answer (3)**

$$\frac{10}{8} = K(60 - 30)$$

$$\frac{5}{4} = K \times 30 \Rightarrow K = \frac{1}{24}$$

$$\frac{55 - \theta}{8} = \frac{1}{24}\left[\frac{55 + \theta}{2} - 30\right]$$

$$330 - 6\theta = \theta - 5$$

$$335 = 7\theta \Rightarrow \theta = 47.8 \ °C$$

12. **Answer (1)**

$$+ 2V - 2IR - V = 0$$

$$\boxed{I = \frac{V}{2R}}$$

$$V_B - V_A = \frac{V}{2R} \times R + V = V_C + V$$

$$\Rightarrow V_C = \frac{V}{2}$$

13. **Answer (4)**

Angular momentum will not be constant about centre of path.

14. Answer (2)

$$T_1 = 2\pi\sqrt{\frac{l}{g}}$$

$$\frac{gT_1^2}{4\pi^2} = l_1$$

$$\frac{g}{4\pi^2}(5)^2 = l_1$$

$$l_2 = \frac{g}{4\pi^2}(3)^2$$

$$(l_1 - l_2) = \frac{g}{4\pi^2}(4)^2$$

$$T = 2\pi\sqrt{\frac{l_1 - l_2}{g}}$$

$$\boxed{T = 4\,\text{s}}$$

15. Answer (3)

$$\frac{1}{2} \times 5 \times 10^2 = 10x + \frac{1}{2} \times 400 x^2$$

$$250 = 10x + 200x^2$$

$$200x^2 + 10x - 250 = 0$$

$$40x^2 + 2x - 50 = 0$$

$$x = \frac{-2 \pm \sqrt{4 + 4 \times 50 \times 40}}{2 \times 40}$$

$$= \frac{-2 \pm \sqrt{8004}}{80}$$

$$= \frac{-2 \pm 40\sqrt{5}}{80}$$

$$= \frac{-1 \pm 20\sqrt{5}}{40}$$

$$= \left(\frac{20\sqrt{5} - 1}{40}\right)\,\text{m}$$

16. Answer (2)

$$\frac{mgl}{4} = \frac{1}{2}\frac{ml^2}{3}\omega^2$$

$$\sqrt{\frac{3g}{2l}} = \omega$$
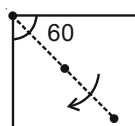
17. Answer (2)

$$p = \sqrt{2mKE} = \sqrt{2 \times 9.1 \times 10^{-31} \times 0.85 \times 1.6 \times 10^{-19}}$$

$$p \approx 5 \times 10^{-25}$$

$$\lambda = \frac{h}{p} = \frac{6.63 \times 10^{-34}}{5 \times 10^{-25}} \approx 13.2\,\text{Å}$$

18. Answer (3)

$$PT^{\frac{\gamma}{1-\gamma}} = \text{constant}$$

$$PT^{\frac{\frac{3}{2}}{1-\frac{3}{2}}} = \text{constant}$$

$$PT^{-3} = \text{constant}$$

$$\boxed{P \propto T^3}$$

19. Answer (2)

$$\Delta E = 13.06\,\text{eV}$$

$$E_H = 13.6 - 13.06\,\text{eV} = 0.54\,\text{eV}$$

$$n = 5$$

$$\Delta L = \frac{5h}{2\pi} - \frac{h}{2\pi} = \frac{2h}{\pi}$$

20. Answer (2)

$$M_s L_f + M_w \times (100 - 0) = m_{ice} \times L_{ice}$$

$$50 \times 540 + 50 \times 100 = m_{ice} \times 80$$

$$m_{ice} = 400\,\text{gm.}$$

21. Answer (3)

$$\frac{1}{f_1} = \frac{(\mu_1 - 1)}{R}$$

$$\frac{1}{f_2} = \frac{(\mu_2 - 1)}{R}$$

$$\frac{1}{f} = \frac{1}{f_1} - \frac{1}{f_2}$$

$$= \left(\frac{\mu_1 - 1}{R}\right) - \left(\frac{\mu_2 - 1}{R}\right)$$

$$f = \left(\frac{R}{\mu_1 - \mu_2}\right)$$

$$= \frac{10}{\frac{7}{4} - \frac{3}{2}}$$

$$= 40\,\text{cm}$$

22. Answer (3)

$$\vec{V}_{IG} = 2\vec{V}_{MG} + \vec{V}_{OG}$$

$$\vec{V}_{IG} = 2 \times 0 - (3\hat{i}) + 2\hat{j}$$

$$\vec{V}_{IO} = \vec{V}_{IG} = \vec{V}_{OG}$$

$$= -3\hat{i} + 2\hat{j} - 3\hat{i} - 2\hat{j}$$

$$= -6\hat{i}\,\text{m/s}$$

23. Answer (1)

For maxima

$$y = \frac{n\lambda D}{d}$$

$$y_1 = \frac{9\lambda_1 D}{d}$$

For minima

$$y = \frac{(2n-1)\lambda D}{2d}$$

$$y_2 = \frac{9\lambda_2 D}{2d}$$

$$\frac{y_1}{y_2} = \frac{2\lambda_1}{\lambda_2}$$

24. Answer (1)

$$d\sin\theta = n\lambda$$

$$d = \frac{\lambda}{\sin\theta}$$

$$d = \left(\frac{6000}{1/2}\right)$$

$$d = 12000 \text{ Å}$$

$$d = 1.2 \text{ micron}$$

25. Answer (3)

$$u_i = \frac{Q^2}{2C}$$

$$u_f = \frac{Q^2}{2C_1}$$

$$C_1 = \frac{\dfrac{A\epsilon_0}{d/2} \times \dfrac{A\epsilon_0 k}{(d/2)}}{\dfrac{A\epsilon_0}{d/2} + \left(\dfrac{A\epsilon_0 k}{d/2}\right)}$$

$$C_1 = \frac{2k\dfrac{A\epsilon_0}{d}}{1+k}$$

$$C_1 = \left(\frac{2k}{1+k}\right)C$$

$$u_f = \frac{Q^2}{2\left(\dfrac{2k}{1+k}\right)C}$$

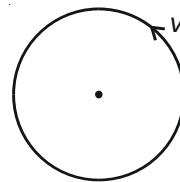$$\frac{u_i}{u_f} = \left(\frac{1+k}{2k}\right)$$

26. Answer (1)

$$I = \frac{q}{T}$$

$$I = \frac{q}{\left(\dfrac{2\pi R}{v}\right)}$$

$$= \left(\frac{qv}{2\pi R}\right)$$

$$\mu = IA$$

$$= \left(\frac{qRv}{2}\right)$$

27. Answer (4)

$$U = \frac{1}{4}\epsilon_0 E^2 + \frac{1}{4}\frac{B^2}{\mu_0}$$

28. Answer (4)

$$P_i = mv\sin 60\,\hat{j}$$

$$= \frac{mv\sqrt{3}\,\hat{j}}{2}$$

$$P_f = -mv\sin 60\,\hat{j}$$

$$= -\frac{mv\sqrt{3}}{2}\,\hat{j}$$

$$\Delta P = P_f - P_i$$

$$\overline{\Delta P} = -mv\sqrt{3}\,\hat{j}$$

$$|\overline{\Delta f}| = mv\sqrt{3}$$

29. Answer (1)

$$X_L = \omega L = 100\pi\,(2.8) = 280\pi = 880\ \Omega$$

$$Z = \sqrt{R^2 + X_L^2} = 880.227$$

$$I = \frac{V}{Z} = \frac{200}{880.227} \approx 0.228 \text{ A} \approx 0.23 \text{ A}$$
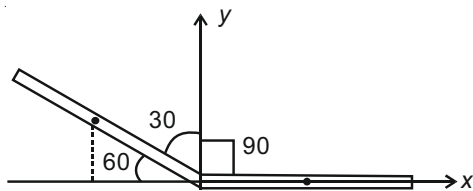
30. Answer (3)

$$W = Tx - Tx = 0$$

31. Answer (3)

$$\mu = \frac{B}{H}$$

$$\mu_r = \frac{B}{\mu_0 H} = \frac{176}{7\times 4\pi\times 10^{-7}\times 2\times 10^{-3}} = 10^4$$

32. Answer (3)

$$x_a = \frac{m\frac{L}{4}\hat{i} - \frac{mL}{8}\hat{i}}{2m}$$

$$x_a = \frac{L}{16}\hat{i}$$

$$y_a = \frac{m\frac{L\sqrt{3}}{8}\hat{j} + m \times 0}{2m}$$

$$y_a = \frac{L\sqrt{3}}{16}\hat{j}$$

$$d = \sqrt{x_{cm}^2 + y_{cm}^2}$$

$$= \sqrt{\left(\frac{L}{16}\right)^2 + \left(\frac{\sqrt{3}L}{16}\right)^2}$$

$$= \frac{L}{8}$$

33. Answer (2)

T_H = 500 K

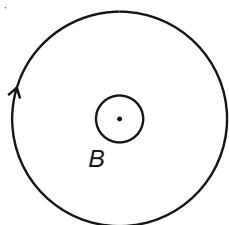T_L = 400 K

$$\eta = 1 - \frac{T_L}{T_H} = 1 - \frac{4}{5}$$

$$\eta = \frac{1}{5} (\approx 20\%)$$

$$\eta = \frac{W_{out}}{Q_{in}}$$

$$W = \frac{20}{100} \times 6 \text{ kcal}$$

W = 1.2 kcal

34. Answer (4)

$$B = \frac{\mu_0 I}{2\pi R}$$

$$\phi = \frac{\pi r^2 \mu_0 I}{2\pi R}$$

$$MI = \phi$$

$$MI = \frac{r^2 \mu_0 I}{2R}$$

$$\boxed{M \propto \frac{r^2}{R}}$$

35. Answer (3)

$$U_1 = 2\frac{3}{2}RT_0$$

$$U_2 = 4\frac{5}{2}R(2T_0)$$

$$2 \times \frac{3}{2}RT_{mix} + 4\left(\frac{5}{2}\right)RT_{mix} = 2\frac{3}{2}RT_0 + 4\frac{5}{2}R(2T_0)$$

$$3RT_{mix} + 10RT_{mix} = 3RT_0 + 20R(T_0)$$

$$13T_{mix} = 23T_0$$

$$\Rightarrow T_{mix} = \frac{23}{13}T_0$$

36. Answer (3)

$$M = \frac{v_0}{u_0}\left(1 + \frac{D}{f_e}\right)$$

$$100 = 10\left(1 + \frac{D}{f_e}\right)$$

$$10 - 1 = \frac{25}{f_e}$$

$$f_e = \frac{25}{9} \text{ cm}$$

37. Answer (2)

$$U_{surface} = -\frac{GM_P m}{R_P}$$

$$U_{centre} = -\frac{3}{2}\frac{GM_P m}{R_P}$$

$$\Delta U = \frac{1}{2}\frac{GM_P m}{R_P}$$

$$\Delta U = \frac{1}{2}mv^2$$

$v = \sqrt{2\dfrac{\Delta U}{m}}$

$v = \sqrt{2\dfrac{1}{2}\dfrac{GM_p m}{R_p m}}$

$v = \sqrt{\dfrac{GM_p}{R_p}}$

$v_e = \sqrt{\dfrac{2GM_p}{R_p}}$

$v = \dfrac{v_e}{\sqrt{2}}$

38. Answer (1)

$A\cos\theta = \dfrac{\vec{A}\cdot\vec{B}}{|B|}$

$A\cos\theta_1 = \dfrac{2+3}{\sqrt{2}}$

$= \dfrac{5}{\sqrt{2}}$

$A\cos\theta_2 = \dfrac{2-3}{\sqrt{2}}$

$= \left(-\dfrac{1}{\sqrt{2}}\right)$

39. Answer (2)

$\phi = \vec{B}\cdot\vec{A}$

$= BA\cos 60°$

$= \left(2+\dfrac{3}{\pi}t^2\right)\pi(0.4)^2 \times \dfrac{1}{2}$

$= \left(2+\dfrac{3}{\pi}t^2\right)\pi \times 0.08$

$|E| = -\left|\dfrac{d\phi}{dt}\right|$

$E = 3 \times 0.08 \times 2t$

$E = 3 \times 2 \times 2 \times 0.08$

$= 12 \times 0.08$

$= .96\ V$

40. Answer (1)

$E_s = \dfrac{MdI_p}{dt}$

$E_s = 4 \times \dfrac{8}{4\times 10^{-3}}$

$E_s = 8 \times 10^3\ V$

41. Answer (4)

$F\varepsilon = F_G$

$\dfrac{q^2}{4\pi\varepsilon_0 r^2} = \dfrac{Gm^2}{r^2}$

$\dfrac{m^2}{q^2} = \sqrt{\dfrac{1}{4\pi\varepsilon_0 G}}$

42. Answer (3)

$\dfrac{hc}{\lambda} = \phi_0 + eV$

$\dfrac{hc}{3\lambda} = \phi_0 + \dfrac{eV}{4}$

$\dfrac{hc}{3\lambda} = \phi_0 + \dfrac{\dfrac{hc}{\lambda}-\phi_0}{4}$

$\dfrac{hc}{3\lambda} = \phi_0 + \dfrac{hc}{4\lambda} - \dfrac{\phi_0}{4}$

$\dfrac{hc}{12\lambda} = \dfrac{3\phi_0}{4}$

$\dfrac{hc}{9\lambda} = \dfrac{hc}{\lambda_1}$

$\lambda_1 = 9\lambda$

43. Answer (1)

$y = \overline{(A+B)\cdot C}$

$y = \overline{A+B} + \overline{C}$

$= \overline{A}\cdot\overline{B} + \overline{C}$

44. Answer (1)

To measure light intensity, we use photodiode with reverse bias.

45. Answer (2)

The number of mother nuclei decaying in short time interval dt is = $N_1\lambda_1 dt$. But death of mother nucleus implies the birth of daughter nucleus.

The number of daughter nuclei decaying in same time interval = $N_2\lambda_2 dt$

The number of daughter nuclei remain constant when

$N_1\lambda_1 dt = N_2\lambda_2 dt$

$N_1\lambda_1 = N_2\lambda_2$

CHEMISTRY

46. Answer (2)

$$L = \sqrt{l(l+1)}\,\frac{h}{2\pi}$$

$$= \sqrt{2(2+1)}\,\frac{h}{2\pi} = \sqrt{6}\,\frac{h}{2\pi}$$

47. Answer (3)

Mole of methanol = 5

Mass of water = 1000 g

Mass of methanol = 32 × 5 = 160 g

Mass of solution = 1160 g

Mass percentage of $CH_3OH = \dfrac{160}{1160} \times 100$

$= 13.8\%$

48. Answer (3)

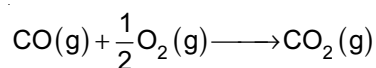**49. Answer (2)**

50. Answer (4)

51. Answer (3)

52. Answer (2)

$$CO(g) + \frac{1}{2}O_2(g) \longrightarrow CO_2(g)$$

$$\Delta n_g = \left(1 - \frac{3}{2}\right) = -\frac{1}{2}$$

$$\Delta H = \Delta U + \Delta n_g RT$$

$$\Delta H - \Delta U = \Delta n_g RT = -\frac{1}{2}RT$$

53. Answer (3)

$(n - l - 1) = 2$

$n = 3$

54. Answer (3)

$[NiCl_4]^{2-}$ is sp^3 hybridised. The complex has 2 unpaired electrons.

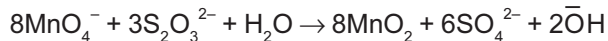**55. Answer (3)**

$K_a = C\alpha^2$

$$\alpha = \sqrt{\frac{K_a}{C}} = \sqrt{\frac{10^{-4}}{0.01}} = 10^{-1} = 0.1$$

$i = 1 + \alpha = 1 + 0.1 = 1.10$

56. Answer (3)

$$8MnO_4^- + 3S_2O_3^{2-} + H_2O \rightarrow 8MnO_2 + 6SO_4^{2-} + 2\overline{O}H$$

57. Answer (4)

58. Answer (3)

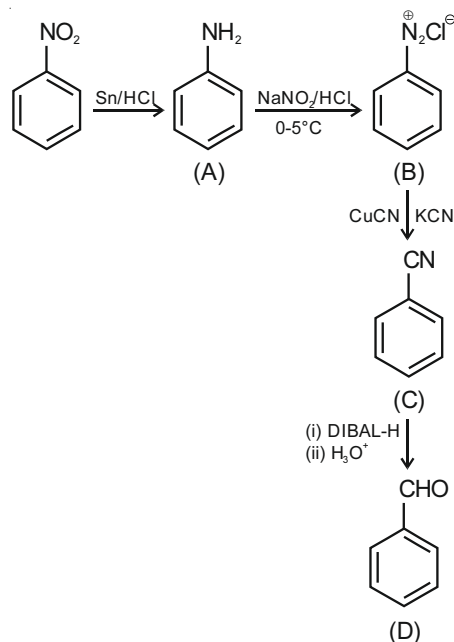**59. Answer (3)**

60. Answer (1)

61. Answer (2)

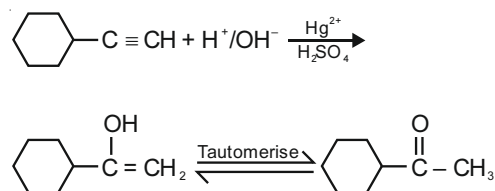$$\Delta S = 2.303\,nR\,\log\frac{V_f}{V_i}$$

$$\Delta S = 2.303 \times 1 \times R\,\log\frac{10}{1}$$

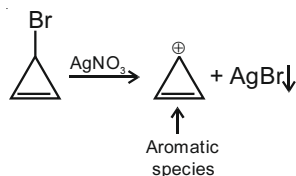$$\Delta S = 2.303R$$

62. Answer (3)

63. Answer (1)

64. Answer (2)

65. Answer (4)

66. Answer (1)

Aromatic species

67. Answer (2)

For Freundlich isotherm

$$\log \frac{x}{m} = \log k + \frac{1}{n}\log p$$

Intercept (c) = log k

68. Answer (2)

69. Answer (4)

Tertiary amines do not react with Hinsberg's reagent.

70. Answer (2)

71. Answer (4)

72. Answer (2)

Stability of carbocation and (C – O) bond cleavage.

73. Answer (2)

74. Answer (2)

$$\sqrt{\frac{T_{SO_2}}{64}} = \sqrt{\frac{300}{32}}$$

$\therefore$ T_{SO_2} = 600 K

75. Answer (2)

$$\left(P + \frac{a}{V^2}\right)(V - b) = RT$$

At high pressure, $\dfrac{a}{V^2}$ can be neglected

$\therefore$ P(V – b) = RT

or,   PV – Pb = RT

or, $\dfrac{PV}{RT} - \dfrac{Pb}{RT} = 1$

$$\frac{PV}{RT} = z = \left(1 + \frac{Pb}{RT}\right)$$

76. Answer (1)

77. Answer (4)

78. Answer (4)

79. Answer (4)

Alcohol does not give addition product with $NaHSO_3$

80. Answer (2)

Bond order = 1.33 for CO_3^{2-}

81. Answer (4)

82. Answer (3)

20 ml H_2O_2 gives 400 ml O_2 at NTP

$\therefore$ 1 ml will give = $\dfrac{400}{20}$ ml of O_2
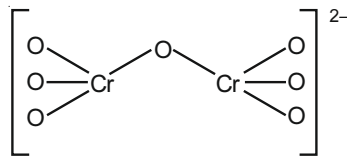
= 20 ml of O_2

83. Answer (3)

84. Answer (2)

85. Answer (3)

86. Answer (2)

87. Answer (3)

Mischmetal consist of lanthanoid metal (~95%), Fe(~5%) and traces of S, C, Ca and Al.
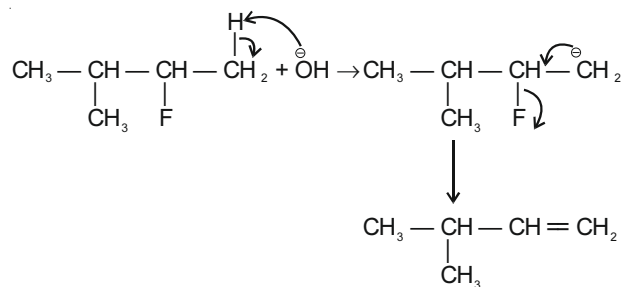
88. Answer (2)

89. Answer (2)

$$4r = \sqrt{3}a$$

$$r = \frac{\sqrt{3}}{4}a$$

$$= \frac{\sqrt{3}}{4} \times 300 = 75\sqrt{3} \text{ pm}$$

90. Answer (3)

BOTANY

91. Answer (3)

Penicillium belongs to Ascomycetes while *Alternaria* belongs to Deuteromycetes group. Both produce exogenous asexual spores *i.e.* conidia.

92. Answer (4)

Protists which float passively in water current are diatoms. Diatoms have indestructible cell wall.

93. Answer (4)

TMV does not have envelope outside the capsid.

94. Answer (3)

Gelidium is a red alga used in commercial production of agar.

95. Answer (1)

Hypogynous flowers with vexillary aestivation are present in family Fabaceae. Pea, groundnut and lupin belongs to Fabaceae family.

96. Answer (2)

Due to absence of cambium, monocot roots lack secondary growth.

97. Answer (4)

Mesocarp of coconut fruit is fibrous and non-edible.

98. Answer (3)

1-5% of total incident radiation or 2-10% of PAR is captured by plants

99. Answer (4)

100. Answer (1)

BGA

101. Answer (3)

102. Answer (2)

Growth and reproduction are mutually inclusive events in unicellular organisms.

103. Answer (4)

104. Answer (2)

105. Answer (1)

Intrafascicular cambium is differentiated tissue.

106. Answer (3)

Pistil   - Megasporophyll

Stamen - Microsporophyll

Ovule   - Megasporangia

107. Answer (4)

108. Answer (3)

109. Answer (2)

110. Answer (2)

Formation of enzyme precursor for lysosome is the function of RER.

111. Answer (3)

- Before S phase each chromosome has single chromatid so the cell has – 20 chromatids, 10 pg DNA

- After S phase (After DNA replication) each chromosome has sister (two) chromatids so the cell will have – 40 chromatids, 20 pg DNA

112. Answer (4)

Integral proteins run throughout lipid bilayer and require crude method of treatment like detergents for their removal.

113. Answer (3)

Transpiration will be higher if plant has high root to shoot ratio.

114. Answer (1)

Manganese is involved in splitting of water to liberate oxygen during photosynthesis.

115. Answer (3)

Absorption maxima of chlorophyll 'a' is in blue and red regions.

116. Answer (1)

From each molecule of fructose-1,6- bisphosphate, 6 ATP molecules are synthesised by substrate level phosphorylation in aerobic respiration (complete oxidation)

117. Answer (4)

Tetrad formation – Pachytene

118. Answer (2)

119. Answer (1)

Nitrogenase contains Fe and Mo.

120. Answer (4)

Green pod colour is a dominant trait

121. Answer (2)

122. Answer (3)

Cyclosporin A is the immunosuppressive agent produced by *Trichoderma polysporum*

123. Answer (3)

For turgid cell, DPD is zero.

124. Answer (2)

China rose, tomato and lemon have axile placentation.

125. Answer (2)

126. Answer (4)

F plasmid lacking bacterial cells are F-cells which act as recepient cells for F-plasmid during conjugation
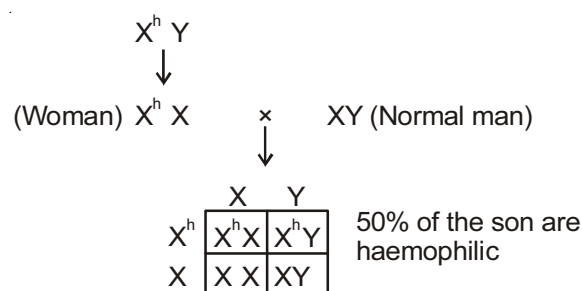
127. Answer (3)

Number of genotypes $= \dfrac{n(n+1)}{2}$

where n is number of alleles

128. Answer (2)

129. Answer (3)

Potato has tuber as their underground stem.

130. Answer (1)

$$X^h Y$$
$$\downarrow$$

(Woman) $X^h X$　　×　　XY (Normal man)

$$\downarrow$$

	X	Y
X^h	$X^h X$	$X^h Y$
X	X X	XY

50% of the son are haemophilic

131. Answer (2)

Most abundant RNA in a cell is rRNA which is synthesised with the help of RNA polymerase I.

132. Answer (2)

Each nucleosome has 200 bp of DNA

So total nucleosomes associated with 4.8×10^6 bp will be

$$= \dfrac{4.8 \times 10^6}{200} = 2.4 \times 10^4 \text{ nucleosomes}$$

133. Answer (3)

Virus free plants are produced by meristem culture.

134. Answer (3)

Orchid growing on mango branch as epiphyte is an example of commensalism, which is a +,0 relation.

Where neither of the interacting species are harmed.

135. Answer (4)

Decomposition is higher at temperature higher than 25°C.

ZOOLOGY

136. Answer (1)

This technique is called as IUT (Intra uterine transfer)

137. Answer (3)

Tightly bound cofactors are prosthetic groups.

138. Answer (2)

$9 = q^2$; $p^2 = 0.7$

∴　$2pq = 0.3 \times 0.7 \times 2 = 0.42$

= 42 individuals out of 100 individuals

139. Answer (3)

Golden rice is rich in β-carotene

(precursor of Vitamin A)

140. Answer (2)

Type II Restriction endonucleases recognises specific palindromic sequence (dsDNA) and hydrolyse sugar phosphate backbone

141. Answer (3)

Use of nicotine stimulates the secretion of emergency hormones.

142. Answer (1)

Breast enlargement is a side effect of use of anabolic steroids by males.

143. Answer (2)

ANF is a vasodilator.

144. Answer (4)

Ancylostoma is not segmented, *Asterias* has water vascular system.

145. Answer (4)

Excretory organ is neural gland in *Ascidia*.

146. Answer (4)

Bone marrow and thymus are primary lymphoid organs.

147. Answer (3)

Animals with open circulatory system lack capillary beds.

148. Answer (2)

Duration between dubb and lubb is 0.5 sec.

149. Answer (3)

Neutrophils are the most abundant WBCs.

150. Answer (4)

Uridylic acid is a nucleotide.

151. Answer (4)

PCT-cuboidal

152 Answer (3)

Corpus luteum secretes progesterone in luteal phase.

153. Answer (1)

K^+ ion moves out due to opening of voltage gated K^+ channels

154. Answer (2)

Condoms and femshields prevent transmission of STDs by covering the surface of external genitalia completely.

155. Answer (3)

FSH is a water soluble hormone and interacts with membrane bound receptor.

156. Answer (4)

Diaphragm is a mammalian feature.

157. Answer (4)

Cyclostomes lack operculum

158. Answer (2)

pO_2 in systemic vein and pulmonary artery = 40 mm Hg. pCO_2 in systemic artery = 40 mm Hg

159. Answer (2)

Internal fertilization occurs in cockroach.

160. Answer (2)

pUC8 has *lac z* gene which codes for β-galactosidase enzyme.

161. Answer (2)

RNAi forms ds RNA and inhibits the translation of specific mRNA.

162. Answer (3)

Gametocytes are present in RBCs of infected human blood which is sucked by mosquito.

163. Answer (1)

Almost all enzymes are proteinaceous in nature.

164. Answer (3)

Progesterone alters gene expression. Source of oxytocin is hypothalamus. Secretin activates secondary messenger.

165. Answer (3)

Urine is slightly acidic in nature

166. Answer (1)

Gastic juice is highly acidic (pH 1.8)

167. Answer (2)

Catla and *Rohu* are freshwater fishes.

168. Answer (2)

Corpus striatum is present in brain

169. Answer (2)

Glomerulonephritis is the inflammation of glomeruli of kidney.

170. Answer (2)

LH surge induces ovulation

171. Answer (2)

Cockroach exhibit metamorphosis.

172. Answer (3)

Mini pills are progesterone only pills.

173. Answer (4)

In Myocardial ischemia, O_2 supply is reduced which further results in myocardial infarction.

174. Answer (3)

Enzyme linked immunosorbent assay is based on antigen-antibody interaction.

175. Answer (1)

Facial bone = 14

Cranial bone = 8

Cervical vertebrae = 7

176. Answer (4)

Amphibian (frog), arthropod (cockroach), bird (*Pavo*), mammal (*Macropus*) and segmented annelid (earthworm) are bilaterally symmetrical and exhibit segmentation

177. Answer (3)

H-band is present at the centre of A-band. A-Band consists of both thick and thin filaments.

178. Answer (1)

Australian marsupials show adaptive radiation and divergent evolution.

179. Answer (4)

White colored colonies are recombinant colonies showing insertional inactivation of *lac z* gene encoding β-galactosidase.

180. Answer (1)

Indirect method of gene transfer involves vectors such as disarmed Ti plasmid of *A. tumefaciens* in plant cell & disarmed retrovirus in animal cell, while direct methods are vectorless.

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