NARAYANA IIT-JEE/NEET/FOUNDATION | JAIPUR CENTER

46 YEARS OF EXCELLENCE

SAMPLE PAPER - 7

NEET (UG) | 2025

Duration : 3 Hrs. | Maximum Marks : 720

ANSWER KEY

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

SOLUTION

PART – I : PHYSICS

1.

Ans. 1

Sol. $H_{max} = \frac{u^2}{2g}$

$H_{max} \propto u^2$

$\Rightarrow V = \sqrt{3}V_0$

2.

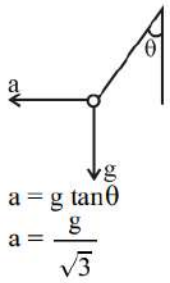
Ans. 3

Sol. Maximum height $= \frac{1}{2} \times 110 \times 1000 = 55\,km$

3.

Ans. 2

Sol.



$a = g\tan\theta$

$a = \frac{g}{\sqrt{3}}$

4.

Ans. 3

Sol. $S = \frac{\frac{1}{2}mv_0^2}{F} \Rightarrow S = \frac{KE}{F}$

$\because S =$ constant

5.

Ans. 1

Sol. $\vec{F} \cdot \vec{d} = 0$

$12 - 6 - 3x = 0$

$6 = 3x$

$x = 2$

6.

Ans. 1

Sol.

Diamagnetic	Paramagnetic	Ferromagnetic
$-1 \leqslant \chi < 0$	$0 < \chi < \varepsilon$	$\chi >> 1$
$0 \leqslant \mu_r < 1$	$1 < \mu_r < 1 + \varepsilon$	$\mu_r >> 1$
$\mu < \mu_0$	$\mu > \mu_0$	$\mu >> \mu_0$

8.

Ans. 1

Sol. Motional emf induced in the connector

$\varepsilon = vB\ell = (2)(2)(1) = 4\,V$

This acts as a cell of emf 4 V and internal resistance 2Ω

6Ω and 3Ω resistors are in parallel.

$\therefore \frac{1}{R_p} = \frac{1}{6} + \frac{1}{3} = \frac{1+2}{6} = \frac{3}{6} = \frac{1}{2}; R_p = 2\Omega$

$\therefore$ Current through the connector,

$I = \frac{\varepsilon}{R_p + r} = \frac{4}{2+2} = 1A$

Magnetic force on the connector $F = BI\ell = 2(1)$

10.

Ans. 3

Sol. $At\ A : X_C > X_L$

$At\ B : X_C = X_L$

$At\ C : X_C < X_L$

11.

Ans. 3

Sol. Dimensions of power and angular momentum are not same

$[\text{ Power }] = \frac{[\text{ Work }]}{[\text{ Time }]} = \left[M^1 L^2 T^{-3}\right]$

[Angular momentum] = [Length × Linear momentum] = $\left[M^1 L^2 T^{-1}\right]$

$[\text{ Work }] = [\text{ Moment of force }] = \left[M^1 L^2 T^{-2}\right]$

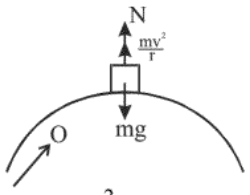
$[\text{ Pressure }] = [\text{ Elastic constant }] = \left[M^1 L^{-1} T^{-2}\right]$

$[\text{ Light year }] = [\text{ Wavelength }] = \left[M^0 L^1 T^0\right]$

13.

Ans. 1

Sol.



$$N + \frac{mv^2}{r} = mg$$

$$v = \sqrt{rg} \Rightarrow \sqrt{Rg}$$

15.

Ans. 2

Sol. $\alpha = \frac{\omega}{t} = \frac{4}{1} = 4 rad/s^2$

$\tau = I\alpha = 2\times10^3 \times 4 = 8\times10^3$ N

16.

Ans. 1

Sol. $I_{remaining} = I_{complete} - I_{removed}$

$$= \frac{9MR^2}{2} - \left[\frac{M(R/3)^2}{2} + M\left(\frac{2R}{3}\right)^2\right] = 4MR^2$$

18.

Ans. 4

Sol. $MP = 1 + \frac{D}{f} = 1 + \frac{25}{5} = 6$

19.

Ans. 2

Sol. $\tan\theta = \frac{r}{f}$

$r = f\tan\theta$

$r \propto f$

$\therefore$ Area $= \pi r^2 \propto f^2$

21.

Ans. 4

Sol. BE of $_2He^4 = 4\times7.06 = 28.24$MeV

BE of $^7_3Li = 7\times5.60 = 39.20$MeV

$^7_3Li + ^1_1H \longrightarrow {}_2He^4 + {}_2He^4 + Q$

$39.20 \quad 28.24\times2$

$Q = 56.48 - 39.20 = 17.28$MeV

22.

Ans. 1

Sol. The work function has no effect on current so as long as $h\nu > W_0$. The photoelectric current is proportional to the intensity of light. Since there is no change in the intensity of light, therefore $I_1 = I_2$.

25.

Ans. 2

Sol. $\omega = 20$

$\frac{2\pi}{T} = 20$

$T = \frac{2\pi}{20} = \frac{\pi}{10}$s

26.

Ans. 2

Sol. $l_c = 0.85$m

$$f_0 = \frac{v}{4l_c} = \frac{340\,ms^{-1}}{4\times0.85\,m} = 100\,Hz$$

$f_n = (2n+1)f_0$

$= f_0, 3f_0, 5f_0, 7f_0, 9f_0, 11f_0, 13f_0$

$= 100\,Hz, 300\,Hz, 500\,Hz, 700\,Hz, 900\,Hz,$

$1100\,Hz$

27.

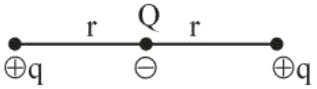
Ans. 1

Sol. $v_e \propto R\sqrt{\rho}$ $\frac{v_{e_1}}{v_{e_2}} = \frac{R_1\sqrt{\rho_1}}{R_2\sqrt{\rho_2}} = \frac{1}{2}\sqrt{\frac{4}{1}} = 1$

28.

Ans. 1

Sol.



For U = 0

$$-\frac{2KQq}{r} + \frac{Kq^2}{2r} = 0$$

$$4Q = +q \Rightarrow \frac{q}{Q} = +4$$

29.

Ans. 4

Sol. * Net force on dipole in uniform electric field is zero.

** $\tau = PE\sin\theta$ when $\theta = 90^\circ \Rightarrow \tau = \tau_{max} = PE$.

30.

Ans. 4

Sol. Initially

$$\frac{R_1}{R_2}=\frac{x}{(100-x)}=\frac{10}{30}\Rightarrow x=25\,cm$$

Finally after interchange

$$\frac{y}{100-y}=\frac{30}{10}\Rightarrow y=75\,cm$$

shifting $=50\,cm$

31.

Ans. 4

Sol. at equilibrium condition

$$=\frac{\sigma^2 A}{2\varepsilon_0}=T=mg$$

$$m=\frac{\sigma^2 A}{2\varepsilon_0 g}$$

32.

Ans. 2

Sol. $V=i_g\left(R+R_g\right)$

$$15=15\times10^{-3}(R+200)\Rightarrow R=800\Omega$$

33.

Ans. 4

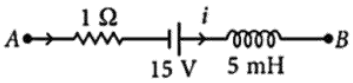
Sol. $a=\frac{96}{32}=3m/s^2$

$$F_{body}=30\times3=90\,N$$

34.

Ans. 3

Sol.



Voltage across resistance, $V_R = iR = 5 \times 1 = 5$ V

Voltage across inductance,

$$V_L=-L\frac{di}{dt}=-5\times10^{-3}\left(-10^3\right)=5V$$

35.

Ans. 1

Sol. Given, frequency of the EM wave

$v = GHZ = 3\times10^9$ Hz

Relative permittivity, $\varepsilon_r = 2.25$

Now, refractive index of the medium

$$n=\sqrt{\mu_r\varepsilon_r}=\sqrt{1\times2.25}=1.5$$

Here relative permeability, $\mu_r = 1$

$\therefore$ Wavelength of the wave in the medium,

$$\lambda_m=\frac{\lambda_{vacuum}}{n}=\frac{c/v}{1.5}=\frac{\left(3\times10^8/3\times10^9\right)}{1.5}$$

$$=\frac{0.1}{1.5}=\frac{1}{15}m\approx667\times10^{-2}\,cm$$

36.

Ans. 2

Sol. $R=\frac{P}{i_{rms}^2}=\frac{240}{16}=15\Omega$

$$Z=\frac{V}{i}=\frac{100}{4}=25\Omega$$

Now $X_L=\sqrt{Z^2-R^2}$

$$=\sqrt{(25)^2-(15)^2}=20\Omega$$

$$\therefore 2\pi fL=20\Rightarrow L=\frac{20}{2\pi\times50}=\frac{1}{5\pi}Hz$$

37.

Ans. 1

Sol. As given in the expression $\beta=\frac{\lambda D}{d}$, fringe width β is independent of 'n' position.

39.

Ans. 3

Sol. Cut in voltage of diode $V_C = 0.4$ V

$$I=\frac{V-V_C}{R}$$

(Forward resistance is very small in comparison to R)

$$I=\frac{10-0.4}{12000}\;I=0.8mA$$

41.

Ans. 4

Sol. $R=2\sqrt{4(H-4)}=2\sqrt{6(H-6)}$

$$2H-8=3H-18$$

$$H=10cm$$

42.

Ans. 3

Sol. Apply energy conservation

$$-\frac{Gmm}{8R}+\frac{1}{2}mv^2=0+0$$

$$V_e=\sqrt{\frac{2Gm}{R}}$$

$$V=\frac{V_e}{2\sqrt{2}}$$

43.

Ans. 3

Sol. $C = 4\pi\varepsilon_0 R = 1\mu f$

volume of 1 big drop

$= 8\times$ volume of 1 small drop

$\frac{4}{3}\pi R^3 = 8\times\frac{4}{3}\pi r^3$

$R = 2r$

$4\pi\varepsilon_0(2r) = 1\mu f$

$C_{small} = \frac{1}{2}\mu f$

44.

Ans. 2

Sol. $V = 12x - 3x^2y + 2yz^2$

$\therefore E_x = -\frac{\partial V}{\partial x} = -12 + 6xy$

$E_y = -\frac{\partial V}{\partial y} = 3x^2 - 2z^2$

$E_z = -\frac{\partial V}{\partial z} = -4yz$

$\therefore (1, 0, -2)$

$E_x = -12 + 0 = -12; E_y = 3 - 8 = -5; E_z = 0$

$\therefore \vec{E}(\text{ at } 1,0,-2) = -12\hat{i} - 5\hat{j}$

45.

Ans. 2

Sol. $\frac{\text{Power in } (P+Q)}{\text{Power in } (R+S)} = \frac{\frac{V^2}{P+Q}}{\frac{V^2}{R+S}} = \frac{R+S}{P+Q}$

$= \frac{R\left[1+\frac{S}{R}\right]}{P\left[1+\frac{Q}{P}\right]}$

Also $\frac{P}{R} = \frac{Q}{S} \Rightarrow \frac{S}{R} = \frac{Q}{P}$

from(A) (B) $\frac{\text{Power in (P+Q)}}{\text{Power in (R+J)}} = \frac{R}{P}$

PART – II : CHEMISTRY

49.

Ans. 1

Sol. $Ag_2CO_3 \xrightarrow{\Delta} 2Ag + CO_2 + \frac{1}{2}O_2$

Moles of $Ag_2CO_3 = \frac{2.76}{276} = 0.01$

Moles of Ag produced $= 0.01\times 2 = 0.02$

Moles of Ag produced $= 0.02\times 108 = 2.16g$

50.

Ans. 2

Sol. Heat liberated in combustion of 0.4g CH_4 = 0.25 kcal

$\therefore$ Heat liberated in combustion of

$16g\,CH_4 = \frac{0.25}{0.4}\times 16 = 10\,kcal$

55.

Ans. 4

Sol. $2H_2SO_4 + 2P_2O_5 \rightarrow 2SO_3 + 4HPO_3$

56.

Ans. 1

Sol. K_2SO_4 raises the B.P. of H_2SO_4 while $CuSO_4$ acts as a catalyst used to distinguish Br^- and I^-

67.

Ans. 4

Sol. $\Delta E = 13.58\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right), n_1 = 1, n_2 = 2$

73.

Ans. 2

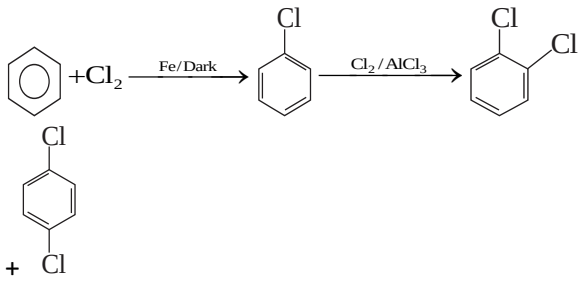
Sol. 

$$+C_6H_5MgBr \rightarrow C_6H_5-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\underset{|}{\overset{|}{C}}}}-OMgBr \xrightarrow{H_3O^+}$$

$$C_6H_5-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\underset{|}{\overset{|}{C}}}}-OH$$

77.

Ans. 4

Sol. 

79.

Ans. 3

Sol. At isoelectric point, amino acid is neutral.

82.

Ans. 1

Sol. $\Delta S = \frac{\Delta H}{Tm} = \frac{6000 J\,mol^{-1}}{273K} = 21.98 K^{-1} mol^{-1}$

85.

Ans. 2

Sol. $E^0_{cell} = 0.29 - \frac{0.059}{2} \log \frac{0.01 \times (0.01)^2}{(0.01)^2}$

OR $E^0_{cell} = 0.35\,volt$