NARAYANA
IIT-JEE/NEET/FOUNDATION | JAIPUR CENTER

46 YEARS OF EXCELLENCE

SAMPLE PAPER - 5

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

SOLUTION

PART – I : PHYSICS

1. **1**

2. **4**

Sol. Due to electron beam no change in flux so induced current in loop = 0

3. **2**

Sol. $T = \frac{2\pi}{\omega} = 6 \Rightarrow \omega = \frac{\pi}{3} \sec^{-1}$

$A = 3$ cm

Maximum speed $= A\omega = 3 \times \frac{\pi}{3} = \pi \text{cm / sec}$

4. **4**

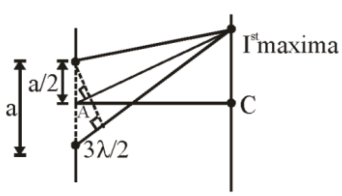
Sol. $PV = nRT \Rightarrow P = \frac{\rho RT}{M_\omega} \Rightarrow \frac{P_\omega}{\rho} =$ constant

$$\frac{P_1 M_{\omega 1}}{\rho_1} = \frac{P_2 M_{\omega 2}}{\rho_2}$$

$$\Rightarrow \frac{\rho_1}{\rho_2} = \frac{P_1}{P_2} \times \frac{M_{w1}}{M_{w2}} = \frac{4}{3} \times \frac{2}{3} = \frac{8}{9}$$

5. **4**

Sol.



For 1st maxima path difference in wavelets from edges $= \frac{3\lambda}{2}$

$\therefore$ path difference in between wavelets from one of the edge and from then centre of slit $= \frac{3\lambda}{4}$

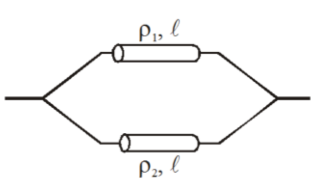
$\therefore$ phase difference $= \frac{3}{4} \times 2\pi = \frac{3\pi}{2}$ radian.

6. **3**

Sol. Rest mass of neutron > Rest mass of proton

7. **1**

Sol.



$$R_{eq} = \frac{R_1 R_2}{R_1 + R_2} \Rightarrow \frac{\rho_{eq}\ell}{2A} = \frac{\frac{\rho_1 \ell}{A} \times \frac{\rho_2 \ell}{A}}{\frac{\rho_1 \ell}{A} + \frac{\rho_2 \ell}{A}}$$

$$\Rightarrow r_{eq} = \frac{2\rho_1\rho_2}{\rho_1 + \rho_2}$$

8. **2**

Sol. $\lambda = \frac{h}{\sqrt{2mK}}$

9. **1**

Sol. Capacitive reactance,

$$X_C = \frac{1}{\omega C} = \frac{1}{2\pi f C} \Rightarrow X_C \propto \frac{1}{f}$$

Current $I = \frac{\varepsilon}{X_C}$

10. **1**

Sol. $R_P = R_\alpha$

$$\frac{\sqrt{2 m_p K_p}}{q_P B} = \frac{\sqrt{2 m_\alpha K_\alpha}}{q_\alpha (2B)}$$

$$\frac{\sqrt{2mK_p}}{eB} = \frac{\sqrt{2(4m)K_\alpha}}{2e(2B)}$$

$$\Rightarrow \sqrt{K_P} = \frac{\sqrt{K_\alpha}}{2} \Rightarrow \frac{K_p}{K_\alpha} = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$$

11. **1**

Sol. $m = \frac{f_0}{f_e}; m = \frac{50}{5} \Rightarrow m = 10$

Angular width of Image $= 10 \times 2^\circ = 20^\circ$

12. **3**

Sol. $E = \frac{12400}{5000} eV = 2.48 eV \Rightarrow K_{max} = 1.36 eV$

$\phi = E - K_{max} = (2.48 - 1.36) eV \simeq 1.10 eV$

13. **2**

Sol. $\Delta\ell = \frac{FL}{Ay} \Rightarrow A \propto \frac{1}{y} \Rightarrow R^2 \propto \frac{1}{y} \Rightarrow R \propto \frac{1}{\sqrt{y}}$

$$\frac{R_S}{R_B}=\sqrt{\frac{y_B}{y_S}}=\sqrt{\frac{10^{10}}{2\times10^{10}}}=\frac{1}{\sqrt{2}}\Rightarrow R_S=\frac{R_B}{\sqrt{2}}$$

14. 4

Sol. Do product of $(a\cos\theta\hat{i}+b\sin\theta\hat{j})$ with (a), (b) and (c) is zero.

15. 4

Sol. $I\alpha = rF \Rightarrow 0.20\alpha=\frac{20}{100}\times20$

$\alpha = 20 rad/s^2$

Now, $\omega=\omega_0+\alpha t$

$\Rightarrow \omega = 0+20\times5=100 rad/s$

16. 3

Sol. When a satellite loses energy, it means it loses some of its total energy. This happen when the radius of the orbit decreases. Potential energy decreases more and kinetic energy increases slightly.

17. 4

Sol. $R=4\sin(2\pi t)\hat{i}+4\cos(2\pi t)\hat{j}$

here $r=4m;\omega=2\pi$

$a=\frac{V^2}{R}$ and $\vec{a}=\frac{V^2}{R}(-\vec{R})$

$|V|=\omega\times R=2\pi\times4=8\pi$

18. 2

Sol. Frequency subjected to 5 segments,

$n_5=\frac{5V}{2L}=480 Hz$

Frequency subjected to 2 segments,

$n_2=\frac{2V}{2L}=2\times\frac{480}{5}=192 Hz$

19. 1

20. 4

Sol. $E=\frac{f}{2}PV=\frac{5}{2}PV=\frac{5}{2}\frac{PM}{\rho}$

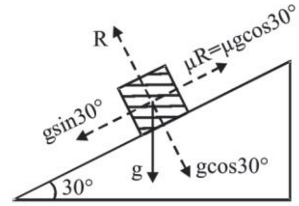
$E=\frac{5}{2}\times\frac{8\times10^4\times1}{4}\Rightarrow E=5\times10^4 J$

21. 1

Sol. When the block starts sliding from the top of the incline, then after 2 seconds

$u=0, t=2s, s=8m, a=?$

$S=ut+\frac{1}{2}at^2$



where $a=g\sin30^\circ-\mu g\cos30^\circ$

$=\frac{g}{2}[1-\sqrt{3}\mu]$

Thus $8=0+\frac{1}{2}\frac{g}{2}(1-\sqrt{3}\mu)\times4$

Solving, $\mu=\frac{1}{5\sqrt{3}}$

22. 3

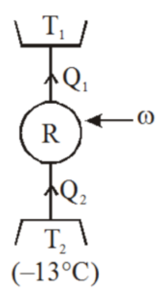
Sol. $a_{net}=\sqrt{\left(\frac{v^2}{r}\right)^2+a_t^2}=\sqrt{\left(\frac{25}{25}\right)^2+1^2}=\sqrt{2}\,ms^{-2}$

$F=ma_{net}=500\sqrt{2}\,N$

23. 3

Sol. $\beta=\frac{T_2}{T_1-T_2}$

$\Rightarrow 5=\frac{273-13}{T_1-260}$



$\Rightarrow T_1-260=\frac{260}{5}=52$

$\Rightarrow T_1=260+52=312K=39^\circ C$

24. 3

Sol. $P_1 > P_2$, final pressure in vessel (1) is more than vessel (2)

$W_1 > W_2$ $\quad$ $W \propto$ Area under PV curve

so, In first vessel, both pressure and work done are more.

25. 1

Sol. $h_2 = e^4 h$

26. **3**

Sol. When two same mass (identical object) collide elastically (oblique) then angle between their final velocities is 90°.

27. **1**

Sol. When a vertical capillary tube (liquid rise h) is tilted by angle θ from vertical then length of liquid in capillary,

$$\ell = \frac{h}{\cos\theta}$$

Here $\theta = 90^\circ - 30^\circ = 60^\circ$

$$\ell = \frac{2\,\text{cm}}{\cos 60^\circ} = 4\,\text{cm}$$

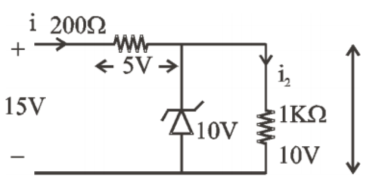
28. **3**

Sol. $\frac{\Delta\rho}{\rho} = -\gamma\Delta T \Rightarrow 49\times10^{-5}\times30$

$\frac{\Delta\rho}{\rho} = 1.47\times10^{-2}$

29. **3**

Sol. $v_{in} > v_z$ hence diode is at breakdown



i = 5/200 = 25 mA

$i_L = 1/10^3 = 10$mA

$i_Z = i - i_L = 25 - 10 = 15$mA

30. **1**

Sol. App. depth = real depth $= \frac{12.5}{1.5} = 8.3$

so shift is 9.4 – 8.3 = 1.1 cm

31. **3**

Sol.

PN - Junction is forward bias

$$I = \frac{\Delta V}{R} = \frac{(-1)-(-3)}{100} = \frac{2}{100}$$

$I = 20\,\text{mA}$

32. **4**

Sol. $\frac{T_A}{T_B} = \frac{\lambda_B}{\lambda_A} = \frac{1500}{500} = 3$

$$\frac{P_A}{P_B} = \frac{r_A^2}{r_B^2}\left(\frac{T_A}{T_B}\right)^4 = 9$$

33. **2**

Sol. $\Delta t = \frac{1}{2}\alpha\Delta\theta\times t$

or $5 = \frac{1}{2}\alpha(\theta-15)\times86400$

and $-10 = \frac{1}{2}\alpha(\theta-30)\times86400$

Solving we get; $\frac{\theta-30}{\theta-15} = -2$

$\theta - 30 = -2\theta + 30$

$3\theta = 60$ or $\theta = 20^\circ$C

34. **4**

Sol. $Y = A + \overline{A}\,B = (A+\overline{A})\cdot(A+B)$

$= 1\cdot(A+B)$

$Y = A + B =$ OR gate

35. **3**

Sol. $v_s = \sqrt{\frac{\gamma RT}{M_w}}$

$v_{sH_2} = \sqrt{\frac{7}{5}\left(\frac{RT}{2}\right)}$

$v_{sHe} = \sqrt{\frac{5}{3}\left(\frac{RT}{4}\right)}$

36. **1**

37. **4**

38. **2**

Sol. $\Delta R = \frac{\Delta V}{\Delta I} = \frac{1.2-1}{(15-10)\times10^{-3}}$

$= \frac{0.2\times1000}{5} = \frac{200}{5} = 40\Omega$

39. **3**

Sol. $mg\ell_2 = 16g\ell_1$ ….. (i)

$mg\ell_1 = 4g\ell_2$ ….. (ii)

$\Rightarrow \frac{16}{m} = \frac{m}{4} \Rightarrow m = 8\,\text{kg}$

40. **4**

Sol. no rolling on smooth incline, so all will take equal time.

41. **1**

Sol. Distance $s = 2(2\pi r) = 80\,m$

by $v^2 = 4^2 + 2a_T s$

$$a_T = \frac{v^2 - 4^2}{2s} = \frac{(80)^2 - 0}{2(80)}$$

$$a_T = 40\,m/s^2$$

42. **3**

Sol. At lowest position

$$u_{min} = \sqrt{5g\ell}$$

43. **2**

Sol. $V_e = \sqrt{\frac{2GM}{R}} = \sqrt{\frac{2G\left(\rho\frac{4}{3}\pi R^3\right)}{R}}$

$V_e \propto \sqrt{\rho R^2} \propto R$

(if $\rho =$ constant)

44. **3**

Sol. $|A - B| = 2 \Rightarrow \sqrt{1^2 + 1^2 + 2\times1\times1\times\cos\theta}$

$\Rightarrow \cos\theta = 0 \Rightarrow \theta = 0^\circ$

so $|A - B| = \sqrt{1^2 + 1^2 - 2\times1\times1\times\cos 0^\circ}$

= 0

45. **1**

Sol. $\int ds = \int_1^2 v\,dt = \int_1^2 \left(4t^3 + 3t^2 - 1\right)dt$

$$s = \left(t^4 + t^3 - t\right)_1^2 = 21m$$