Enthusiast, Leader & Achiever Course

PHASE : ALL PHASE

TARGET : PRE-MEDICAL 2020

Test Type : **MAJOR** Test Pattern : **NEET (UG)**

TEST DATE : 28-08-2020

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

HINT – SHEET

1. Ans (3)

$$\frac{7\lambda_1 D}{2a} = \frac{5\lambda_2 D}{2a}$$

$$\lambda_1 = \frac{5 \times 6500\text{Å}}{7} = 4642.8\text{Å}$$

2. Ans (2)

$F = iB\ell = mg$

$$= \frac{(vB\ell)}{R} B\ell = mg$$

$$v = \frac{mgR}{B^2\ell^2}$$

3. Ans (4)

$k\ell_1 = E_1$

$k\ell_2 = E_1 - E_2$

$\Rightarrow E_2 = E_1 - k\ell_2 = k(\ell_1 - \ell_2)$

$$\frac{E_1}{E_2} = \frac{k\ell_1}{k(\ell_1 - \ell_2)} = \frac{300}{300 - 100} = \frac{3}{2}$$

4. Ans (3)

Between n plates there are (n – 1) gapes.

5. Ans (4)

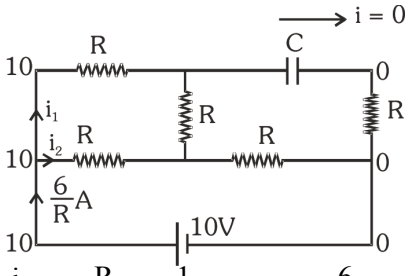
For maximum value of R_S we consider just break down condition.

$I_{in} R_S = 24$

$$\Rightarrow R_S = \frac{24}{6 \times 10^{-3}}$$

$\Rightarrow R_S = 4k\Omega$

6. Ans (4)



$$\frac{i_1}{i_2} = \frac{R}{2R} = \frac{1}{2} \Rightarrow i_1 = \frac{6}{R \times 3} \times 1 = \frac{2}{R}$$

$\Rightarrow V_C = 8V$

7. **Ans (2)**

$\vec{B}_0 = \vec{B}_1 + \vec{B}_2 + \vec{B}_3$

$\vec{B}_1 = \frac{\mu_0 I}{4\pi r}\hat{k}$

(due to upper straight wire)

$\vec{B}_2 = \frac{\mu_0 I}{4r}\hat{k}$

(due to semi circular wire)

$\vec{B}_3 = \frac{\mu_0 I}{4\pi r}\hat{k}$

(due to lower straight wire)

8. **Ans (3)**

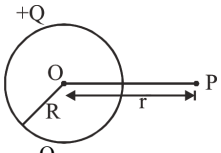
Here not gate is followed by NOR gate so it becomes OR gate.

9. **Ans (4)**

As coil is parallel to axis so no flux passing, no mutual induction.

10. **Ans (3)**

Electric field due to uniformly charged dielectric solid sphere of radius R at a point P is given by



$$E = \begin{cases} k \cdot \frac{Q}{R^3} \cdot r, & rR \\ k \cdot \frac{Q}{r^2}, & r > R \end{cases}$$

For solid sphere 1, $E_1 = \frac{kQ}{R^2}$

For solid sphere 2, $E_2 = 2E_1$

For solid sphere 3, $E_3 = \frac{k(4Q)}{8R^3} \cdot R$

$= \frac{kQ}{2R^2}$

$\therefore\ E_2 > E_1 > E_3$

11. **Ans (4)**

First current develops in direction of abcd but when electron moves away, then magnetic field inside loop decreases & current will change its direction.

12. **Ans (1)**

$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$\frac{u}{v} + 1 = \frac{u}{f}$

$\left(\frac{1}{m} + 1\right) = \frac{u}{f}$

$\frac{(m+1)}{m} = \frac{u}{f}$ ...(i)

Also, $u + v = x$

$1 + \frac{v}{u} = \frac{x}{u}$

$(1 + m) = \frac{x}{u}$ ...(ii)

Multiplying eqns. (i) and (ii),

$\frac{(m+1)^2}{m} = \frac{x}{f}$

$f = \frac{mx}{(m+1)^2}$

13. **Ans (1)**

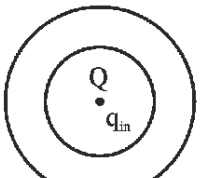
$\vec{F} = I\vec{\ell} \times \vec{B}, \vec{\ell} = \ell\hat{i}$

$\vec{F} = I\ell(\hat{i}) \times B_0(\hat{i} + \hat{j} + \hat{k})$

$\vec{F} = I\ell B_0(\hat{k} - \hat{j})$

$|\vec{F}| = \sqrt{2} I\ell B.$

14. **Ans (2)**



$q_{in} = -Q$ (Induced)

$q_{in} + q_0 = -q$ (Given)

$q_0 = -q + Q$

15. **Ans (2)**

$V_L = V_R = V_C$

$\therefore\ X_L = R = X_C$

$\therefore$ After capacitor short circuited.

$V^2_L + V_2{}^R = 10^2$

let $V_L = V_R = V \Rightarrow 2V^2 = 10^2$

$V = 10/\sqrt{2} = V_L$

16. Ans (3)

For maximum force on axis

$$x = \frac{R}{\sqrt{2}} = \frac{15}{\sqrt{2}} = 10.6 \text{ cm}$$

17. Ans (1)

$i = neA\ Vd$

$$Vd = \frac{i}{neA}$$

$$= \frac{1.6}{10^{29} \times 1.6 \times 10^{-19}} \times (10^{-3})^2$$

$$= \frac{1}{10^{10} \times 10^{-6}} = 10^{-4} \text{m/ sec}$$

18. Ans (2)

$f_0 = 2.0$ cm, $f_e = 6.25$ cm,

$L = 15$ cm, $V_e = -25$ cm

$$\frac{1}{v_e} - \frac{1}{u_e} = \frac{1}{f_e}$$

$$\Rightarrow -\frac{1}{u_e} = \frac{1}{f_e} - \frac{1}{v_e} = \frac{1}{6.25} - \frac{1}{-25}$$

$$-\frac{1}{u_e} = \frac{100+25}{625} = \frac{1}{5}$$

$\Rightarrow u_e = -5$

$V_0 = L - |u_e| = 15 - 5 = 10$ cm

$$\Rightarrow \frac{1}{V_0} - \frac{1}{u_0} = \frac{1}{f_0}$$

$$\Rightarrow -\frac{1}{u_0} = \frac{1}{f_0} - \frac{1}{v_0}$$

$$-\frac{1}{u_0} = \frac{1}{2} - \frac{1}{10} = \frac{4}{10}$$

$\Rightarrow u_0 = -2.5$ cm

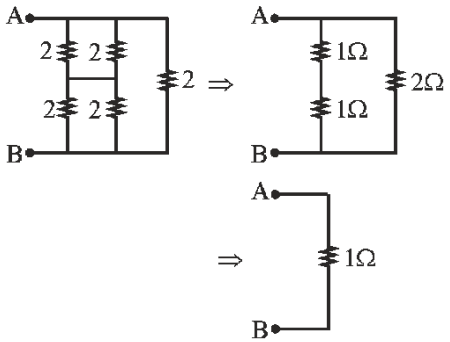
19. Ans (3)

Parabolic mirror gives parallel beam

20. Ans (4)

Required time $t = T/4 = \frac{1}{4 \times 50} = 5 \times 10^{-3}$ sec

21. Ans (1)



22. Ans (1)

$$B_C = \frac{\mu_0 nI}{2r}, \quad B_h = \frac{\mu_0 nIr^2}{2(r^2+h^2)^{3/2}}$$

$$B_h = \frac{\mu_0 nIr^2}{2r^3\left(1+\frac{h^2}{r^2}\right)^{3/2}}$$

$$= B_C\left(1+\frac{h^2}{r^2}\right)^{-3/2}$$

For small h, $B_h = B_C\left(1-\frac{3h^2}{2r^2}\right)$

$$\frac{B_C - B_h}{B_C} = \frac{3h^2}{2r^2}$$

23. Ans (1)

Rays are required to see or photograph so both real & virtual image can be seen and photographed by a camera

24. Ans (3)

Let the initial no. of atom at time t = 0 be N_0.

Le the number of atoms at any instant of time t be N.

According to radioactive decay law, $N = N_0 e^{-\lambda t}$

Mean life, $t = 1/\lambda$. where λ is the decay constant.

Here, t = t (given)

$$\therefore N = N_0 e^{-\frac{1}{\tau}\times\tau}$$

or $N = N_0 e^{-1}$

or $\frac{N_0}{N} = e$

25. Ans (1)

$$R = \frac{mv}{q_B} = \frac{\sqrt{2mK}}{q_B}$$

$R_a = R_p$

$$\therefore \frac{4m_\alpha k_a}{q_\alpha^2 B^2} = \frac{4m_p K_p}{q_p^2 B^2}$$

$$\Rightarrow \frac{4m_p k_\alpha}{4e^2} = \frac{m_p (1\text{MeV})}{e^2}$$

$\Rightarrow K_a = 1$MeV

26. Ans (2)

$V_{BE} = 10 - I_B R_B$

$V_{BE} = 10 - 40 \times 10^{-6} \times 245 \times 10^3$

$= 10 - 9.8 = 0.2$ V

27. Ans (1)

Young's experiment shows interference hence establishes that light consists of waves.

28. Ans (2)

$Q = ne,\ n = \frac{Q}{e} = \frac{5\ \text{faraday}}{e}$

$n = \frac{5 \times 96500C}{1.6 \times 10^{-19}C} = 5 \times 6.02 \times 10^{23}$

29. Ans (2)

$BE = [(3\ M_H + 4\ M_n) - M_{Li}] \times 931\ MeV$

$Be = [(3 \times 1.007825 + 4 \times 1.008665)$

$- 7.016005] \times 931\ MeV$

$= 39.2\ MeV$

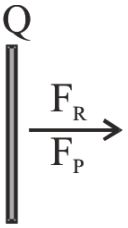
30. Ans (4)

$F = \frac{2IA}{c}$

31. Ans (3)

Force on wire Q due to wire R

$F_R = \frac{4\pi \times 10^{-7}}{4\pi} \times \frac{2 \times 20 \times 10}{0.02} \times 0.1$



$= 20 \times 10–5\ N$ (towards right)

Force on wire Q due to wire P

$F_P = \frac{4\pi \times 10^{-7}}{4\pi} \times \frac{2 \times 30 \times 10}{0.1} \times 0.1$

$= 6 \times 10^{-5}\ N$ (towards right)

Net force on Q

$F = FR + FP$

$= 20 \times 10^{-5} + 6 \times 10^{-5}$

$= 26 \times 10^{-5}\ N$

$= 2.6 \times 10^{-4}\ N$ (towards right)

32. Ans (2)

$\lambda = \frac{h}{p}$

So for same wavelength, momentum is also same.

33. Ans (1)

For $F = max \quad q_1 = q_2$

34. Ans (2)

If forword bias then potential difference is less than potential barrier 3 corresponds to it.

If reverse bias then potential difference is more than potential barrier 1 corresponds to it.

35. Ans (1)

$KE = h\nu - \phi$

$\Rightarrow h\nu - \phi = 1.2\ eV$ ...(1)

$\nu' = 1.5\ \nu,$

$\Rightarrow 1.5\ h\nu - \phi = 3.6\ eV$ ...(2)

by equation (1) & (2)

$\phi = 3.6\ eV$

36. Ans (1)

For $r < R,\ B \propto r$

For $r > R,\ B \propto \frac{1}{r}$

37. Ans (1)

$F = \frac{\mu_0}{4\pi} \frac{2 \times i_1 i_2}{a} = \frac{10^{-7} \times 2 \times 5 \times 5}{0.1}$

$= 5 \times 10^{-5}\ N/m$

38. Ans (4)

also $B_H = \sqrt{3}\, B_V,$

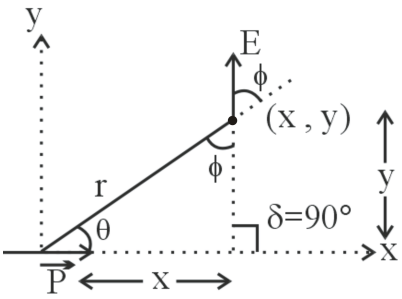
$\tan\theta = \frac{B_V}{B_H} = \frac{1}{\sqrt{3}} \Rightarrow \theta = 30^o$

39. Ans (4)

$P = -\frac{1}{2} = -0.5\ D$

40. Ans (2)

Here



$\theta + \phi = \frac{\pi}{2}$

$\phi = \frac{\pi}{2} - \theta$

We have $\tan\phi = \frac{1}{2}\tan\theta$

$\cos\theta = \frac{1}{2}\tan\theta \ \hat{k}$

$\Rightarrow \quad \tan^2\theta = 2$

$\tan\theta = \sqrt{2}$

Again $\tan\theta = \frac{y}{x} \Rightarrow \sqrt{2} = \frac{y}{\sqrt{2}}$

$\Rightarrow \quad y = 2m$

41. Ans (1)

In series $P = I^2R$, $R = \frac{V_{Rated}^2}{P_{Rated}}$

42. Ans (3)

$W = q\Delta V = 0$ as $\Delta V = 0$

43. Ans (2)

$\lambda_m > \lambda_v > \lambda_x$

44. Ans (1)

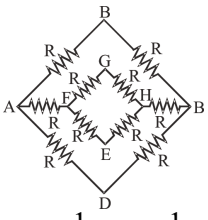
$$\tan\phi = \frac{X_L}{R} = \frac{\omega L}{R} = \frac{2\pi f L}{R}$$

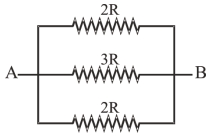
$$= \frac{2\pi \times 200 \times \frac{1}{\pi}}{300} = \frac{4}{3}$$

$$\Rightarrow \quad \phi = \tan^{-1}\left(\frac{4}{3}\right)$$

45. Ans (4)

When a cell is connected across A and C, no current flows in the arms BG and ED due to symmetry in the arrangement. Then equivalent circuit will be as shown in Fig. (a) and (b). The effective resistance between A and C is

(a) 

(b) 

$$\frac{1}{R_{eff}} = \frac{1}{2R} + \frac{1}{3R} + \frac{1}{2R}$$

$$= \frac{3+2+3}{6R} = \frac{8}{6R} = \frac{4}{3R} \text{ or } R_{eff} = \frac{3R}{4}$$

47. Ans (4)

SRP

Mg – 2.37 V

Zn – 0.76 V

Fe – 0.44 V

Top to bottom SRP decreases. So according to ECS rule

Mg can reduce Zn^{+2} and Fe^{+2}

and Zn can reduce Fe^{+2}

48. Ans (3)

Increase between two successive layer = 2r

So distance between 1st and 4th layer = 3 × 2r = 6r

49. Ans (3)

BCC : Corners + Body centre

$$\left(8 \times \frac{1}{8}\right) + 1$$

$= 2$

Z for FCC : Corners + Face centre

$$= \left(8 \times \frac{1}{8}\right) + \left(6 \times \frac{1}{2}\right)$$

$= 1 + 3$

$= 4$

53. Ans (3)

$$\frac{r^+}{r^-} = \frac{95}{181} = 0.52$$

55. Ans (4)

Rate = $k[N_2O_5]$

$\frac{1}{2} \times 2.4 \times 10^{-5} = 3 \times 10^{-5} \times [N_2O_5]$

61. Ans (3)

Sb_2S_3 is negative colloid so according to hardy schulze rule the most effective coagulating agent would be that one which has maximum positive ion valency.

65. Ans (2)

$$M_3 = \frac{M_1V_1 + M_2V_2}{V_1 + V_2} = \frac{2.5 + 1.5}{3 + 2.5}$$

$$= \frac{4}{5.5} = \frac{40}{55} = \frac{8}{11} = 0.727\,M$$

69. Ans (4)

Theory

74. Ans (3)

Fact

81. Ans (3)

$$25 = \frac{1}{K} \times \frac{20}{4}$$

K = 1/5

$$\text{Now } \lambda_{eq} = \frac{1/5 \times 1000}{1/2}$$

$$= 400\Omega^{-1}\,cm^2eq^{-1}$$

82. Ans (3)

rate of appearance of B =

$$\frac{5 \times 10^{-3}}{10} molL^{-1}sec^{-1}$$

$$= 5 \times 10^{-4}\ mol\ L^{-1}sec^{-1}$$

$$\text{rate of reaction} = \frac{\text{rod of 'B'}}{4} = \frac{5 \times 10^{-4}}{4}$$

$$= 1.25 \times 10^{-4}\ mol\ L^{-1}\ sec^{-1}$$

84. Ans (1)

Rate of hydrolysis $\propto$ +ve charge at carbonyl carbon of Acid derivatives

89. Ans (4)

As reaction is endothermic so final product height would be more than reactant.

Second step is rate determinig step so its height or activation energy would be more than first step.

93. Ans (3)

NCERT- XII Pg. # 259, 1st para

101. Ans (3)

NCERT (XII) Pg. # 88

104. Ans (4)

NCERT (XII) Pg. # 150, 151

114. Ans (3)

NCERT XII (E) Pg. # 151 Fig. 8.4

119. Ans (2)

NCERT Pg.# 131

120. Ans (3)

NCERT-XII, Page # 187 (10.5)

121. Ans (2)

12th NCERT Pg. # 226, Fig. First Para

122. Ans (4)

NCERT Page # 236

123. Ans (4)

NCERT(XIIth) Pg # 121(E), 130 (H)

129. Ans (2)

NCERT Pg. # 261, 260, 266

135. Ans (2)

NCERT (XIIth) Pg. # 137

139. Ans (2)

NCERT (XII) Pg. # 131

142. Ans (2)

Generative cell, Male gamete, Pollen grain, Synergids, Megaspore microsporetetrad

145. Ans (4)

NCERT XIIth Pg.#14

156. Ans (1)
NCERT- XII Pg. # 273, 1st para

163. Ans (4)
NCERT (XIIth) Pg. # 211

168. Ans (3)
NCERT (XIIth) Pg. # 167 (9.1.2)

169. Ans (1)
NCERT Pg. # 229

171. Ans (4)
NCERT-XII, Page # 194 (11.1)

174. Ans (4)
NCERT (XII) Pg. # 60

175. Ans (4)
NCERT-XII, Pg No. # 159

179. Ans (2)
NCERT (XIIth) Pg. # 141