TEST CODE: 934002

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NEET (Pre-Medical)

Course: Master Pro-1 | Minor Test-2

Test Date: 03 August 2025 | Answer Key & Solutions

Que.	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
Ans.	3	1	3	2	1	3	2	3	4	1	3	1	4	3	2	2	1	3	1	1	3	4	4	1	2
Que.	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Ans.	4	3	4	4	2	2	4	1	4	1	3	4	3	2	3	1	1	2	3	2	3	1	4	2	4
Que.	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ans.	1	4	4	4	4	2	1	4	4	1	3	3	3	1	4	1	3	4	3	1	2	1	4	2	2
Que.	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Ans.	1	3	2	1	4	2	1	4	1	1	1	4	3	2	2	3	4	1	2	3	2	1	4	1	4
Que.	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125
Ans.	2	4	2	1	1	4	1	4	2	4	2	1	2	4	3	3	2	4	4	4	1	2	1	4	2
Que.	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
Ans.	2	3	4	1	3	1	2	4	4	1	2	3	1	4	1	4	2	4	2	2	2	1	2	3	4
Que.	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
Ans.	4	2	3	2	1	4	2	4	4	1	1	1	4	3	1	3	1	2	3	4	3	2	4	4	2
Que.	176	177	178	179	180																				
Ans.	3	1	1	4	3																				

HINTS & SOLUTION

PHYSICS

1.

$$\frac{1}{f}=\left(\frac{\mu_{lens}}{\mu_{air}}-1\right)\left(\frac{1}{R_1}-\frac{1}{R_2}\right)$$

$$\Rightarrow \quad \frac{1}{+20}=\left(\frac{\mu}{1}-1\right)\left(\frac{1}{+15}-\frac{1}{(-30)}\right)$$

$$\Rightarrow \quad \frac{1}{20}=(\mu-1)\left(\frac{3}{30}\right)$$

$$\Rightarrow \quad \mu-1=\frac{1}{2}$$

$$\Rightarrow \quad \mu=1+\frac{1}{2}=\frac{3}{2}=1.5$$

2. We know that $P_{eq} = \Sigma P_i$

Given all lenses are identical, so

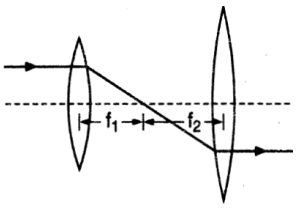
$5P = 25$ D

$\Rightarrow P = 5D$

$\Rightarrow 1/f = 5$

$\Rightarrow f = 1/5$ m $= 20$ cm

3.



$D = f_1 + f_2 = 25$ cm

4. $1/v - 1/u = 1/f$

$$\frac{1}{v}-\frac{1}{2f}=\frac{1}{-f}$$

$$\Rightarrow \quad \frac{1}{v}=\frac{-1}{2f}$$

$\Rightarrow v = -2f$

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

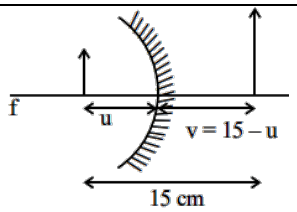
Virtual image of Real object.

In statement II, it is not mentioned that object is real or virtual hence Statement II is false.

5. As $\lambda_{red} > \lambda_{yellow} > \lambda_{violet}$

Light ray with longer wavelength bends less.

6.



$m = 2 = \frac{-v}{u}$

$2 = \frac{-(15-u)}{-u}$

$2u = 15 - u$

$3u = 15$

$u = 5$ cm

$v = 15 - u = 15 - 5 = 10$ cm

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

$= \frac{1}{10} + \frac{1}{(-15)} = \frac{1-2}{10} = \frac{-1}{10}$

$f = -10$ cm

7. $\mu_1 = 1.5; \mu_m = 1.6$

$f_a = 20$ cm

As $\frac{f_m}{f_a} = \frac{(\mu_1 - 1)\mu_m}{(\mu_1 - \mu_m)}$

$\frac{f_m}{20} = \frac{(1.5-1)1.6}{(1.5-1.6)}$

$f_m = -160$ cm

8. Effective focal length (f_{eff}) is

$\frac{1}{f_{eff}} = \frac{1}{f_1} + \frac{1}{f_2} + \frac{1}{f_3}$

From the lens maker's formula

$\frac{1}{f} = (\mu - 1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$

$\frac{1}{f_1} = (1.6-1)\left(\frac{1}{\infty} - \frac{1}{20}\right) = \frac{-0.6}{20} = \frac{-3}{100}$

$\frac{1}{f_2} = (1.5-1)\left(\frac{1}{20} - \frac{1}{-20}\right) = \frac{0.5}{10} = \frac{1}{20}$

$\frac{1}{f_3} = (1.6-1)\left(\frac{1}{-20} - \frac{1}{\infty}\right) = \frac{-0.6}{10} = \frac{-3}{100}$

$\Rightarrow \frac{1}{f_{eff}} = \frac{-3}{100} + \frac{1}{20} - \frac{3}{100}$

$\Rightarrow \frac{1}{f_{eff}} = \frac{-1}{100}$

$\Rightarrow f_{eff} = -100$ cm

9. We know that

For convex lens $f_1 > 0$, concave lens $f_2 < 0$

$\frac{1}{f_{net}} = \frac{1}{f_1} + \frac{1}{f_2} = \frac{1}{f} - \frac{1}{f} = 0$

$f_{net} = \infty$

10. $\sin C = \mu_r / \mu_d$ and $\mu \alpha \frac{1}{v}$

therefore,

$\frac{\mu_c}{\mu_d} = \frac{v_d}{v_r} = \sin C = \frac{v_d}{v_r} = \frac{1.5 \times 10^8}{2 \times 10^8} = \frac{3}{4}$

so, $\theta = \sin^{-1}\left(\frac{3}{4}\right) = \sin^{-1}(0.750)$

11. Plane mirror forms erect, same sized, laterally inverted and virtual image of real object.

12. As we know that the deviation

$\delta = (\mu - 1)A$

By geometry, the angle of refraction by first surface is 5° and given $\mu = 1.5$

So, $\delta = (1:5-1) \times 5^\circ = 2.5^\circ$

also, $\delta = \theta - r$,

By putting the value of δ and r in equation (ii)

$2.5^\circ = \theta - 5^\circ$

So, $\theta = 5 + 2.5 = 7.5^\circ$

13. As we know that when light ray goes from one medium to other medium, the frequency of light remains unchanged.

And,

$c = v\lambda$

So, $c \propto \lambda$ the light of red colour is of highest wavelength and therefore of highest speed. Thus, after travelling through the slab, the red colour emerges first.

15. The incident PQ ray of light passes through focus F on the concave mirror, after reflection should become parallel to the principal axis, i.e., ray-2.

16. One should increase the power of lens i.e., decrease the focal length of a lens.

17. $\because f_0 + f_e = 30$

And magnification, $m = \frac{f_0}{f_e}$

$2 = \frac{f_0}{f_e} \Rightarrow f_0 = 2f_e \Rightarrow f_0 + \frac{f_0}{2} = 30$

$\therefore f_0 = 20$cm

18. Magnifying power of telescope,

$MP = \frac{\beta \text{ (angle subtended by image at eye piece)}}{\alpha \text{ (angle subtended by object on objective)}}$

Also, $MP = \frac{f_0}{f_e} = \frac{150}{5} = 30$,

$\alpha = \frac{50}{1000} = \frac{1}{20}$ rad

$\therefore \quad \beta = \theta = MP \times \alpha = 30 \times \frac{1}{20} = \frac{3}{2}$

= 1.5 rad

19. Given : $f_0 = 1.2cm; f_e = 3.0cm$

$u_0 = 1.25cm; M_\infty = ?$

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

$\Rightarrow \quad \frac{1}{1.2} = \frac{1}{v_0} - \frac{1}{(-1.25)}$

$\Rightarrow \quad \frac{1}{v_0} = \frac{1}{1.2} - \frac{1}{1.25}$

$\Rightarrow \quad v_0 = 30cm$

Magnification at infinity,

$M_\infty = -\frac{v_0}{u_0} \times \frac{D}{f_e} = \frac{30}{1.25} \times \frac{25}{3}$

($\because$ D = 25 cm least distance of distinct vision) = 200 Hence the magnifying power of the compound microscope is 200

20. $\frac{f_0}{f_e} = 9, \quad \therefore f_0 = 9f_e$

Also $f_0 + f_e = 20$ ($\because$ final image is at infinity)

$9f_e + f_e = 20, f_e = 2cm, \quad \therefore f_0 = 18cm$

21. For $M_1 : V = -60, m_1 = -2$

For $M_1 : u = +20, F = 10$

$\frac{1}{v} = \frac{1}{20} = \frac{1}{10}$

$\Rightarrow v = 20$

$\therefore \ M_2 = -\frac{20}{20} = -1$

$\therefore$ M = $m_1 \times m_2$ = +2

22. Convex mirror always forms, virtual, erect and smaller image.

25. For coherent sources λ is same and phase is also same or phase diff. is constant.

27. $I_{max} = I + 4I + 2\sqrt{I \times 4I} = 9I,$

and $I_{max} = I + 4I - 2\sqrt{I \times 4I} = I.$

28. We know that when light strike the interface of two media at Brewster's angle, then reflected light will be plane-polarized with its $\vec{E}$ vector vibrating in a single plane. Now, if there will be no electric field vector then there will no '$\vec{E}$' vibrating in reflected light. So, there will be no reflected light.

29. The angle of incidence for total polarization is given by tanθ = n

$\Rightarrow \quad \theta = \tan^{-1} n$

30. $I = I_0 \cos^2\theta$

Intensity of polarized light = $I_0/2$

$\Rightarrow$ Intensity of untransmitted light

= $I_0 - I_0/2 = I_0/2$

31. $^a\mu_g = \tan\theta_p$ where θ_p = polarising angle.

or $a_{\mu_g} = \tan 60^\circ$

or $\frac{c}{v_g} = \sqrt{3}$ or $v_g = \frac{c}{\sqrt{3}} = \frac{3 \times 10^8}{\sqrt{3}}$

$= \sqrt{3} \times 10^8 ms^{-1}$

32. Let I_0 be intensity of unpolarised light incident on first polaroid.

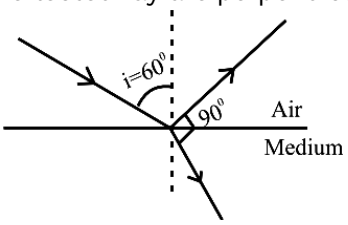
I_1 = Intensity of light transmitted from 1st polaroid $= \frac{I_0}{2}$

θ be the angle between 1st and 2nd polaroid

ϕ be the angle between 2nd and 3rd polaroid

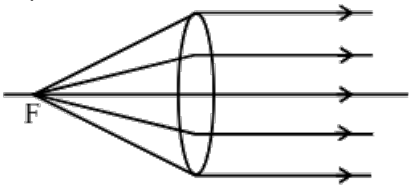
33. By Brewster's law

At complete reflection refracted ray and reflected ray are perpendicular.



34. Light emerges parallel

$\therefore$ planer wavefront



41. Since

$\Delta\vec{r} = \vec{r}_B - \vec{r}_A = (6\hat{i} + 9\hat{j} - 2\hat{k}) - (2\hat{i} + \hat{j} + 4\hat{k})$

$= 4\hat{i} + 8\hat{j} - 6\hat{k}$