Summative Assessment – III -2025-26
Model Question Paper
PHYSICS - X
Answer key

SET- C

Sl. No.	Answer/Value Points	Score	Total Score
1	a) **Statement 1 and Statement 2 are correct.**	1	1
2	c) A-i, B-iii, C-ii	1	1
3	1 h	1	1
4	b) i, ii, iv	1	1
5	a) B	1	2
	b) $t = \frac{2d}{v}$, $t = \frac{(2 \times 17.5)}{350}$ $= \frac{(35)}{350} = 0.1$ s	1	
6A	a) Objective- Convex lens with 100 cm focal length Eyepiece- Convex lens with 10 cm focal length	1	2
	b) To form large and clear image of the far away object	1	
6B	a) between F and 2F	1	2
	b) If the object is placed at F, image is formed at infinity. If the object is placed beyond 2F, the image formed will be smaller. If the object is placed between F and the lens, the image formed will be virtual.	1	
7	Carbon footprint-definition	1	2
	Any one method to decrease carbon footprint	1	
8A	a) Yellow. An object appears green in green light, red in red light, and dark in blue light, and its color is yellow. Yellow is a combination of the primary colors green and red. It reflects the yellow colour in the white light.	1	2
	b) Green, Cyan is the combination of the primary colours green and blue.	1	
8B	Red, Blue. Reason : The reason is that magenta is a secondary colour formed by combining the primary colours red and blue.	1	2
	Red and blue colors in the white light, pass through a magenta filter. Only the red colour then passes through a yellow filter. The emerging red colour also passes through a red filter. The color that falls on the white wall is red.	1	

9	a) DC, In a DC generator, the AC produced in the armature is converted into DC in the external circuit using a split-ring commutator system.	1	2
	b) AC, Due to the armature not rotating, the position of the split ring commutators does not change.	1	
10	$Vs = Ns \times \frac{Vp}{Np}$ $Vs = 60$ V	½ ½	2
	$Ip \times Vp = P$ $Ip \times 240 = 480$ $Ip = 2$ A	½ ½	
11	a) Low melting point	1	2
	Over loading, short circuit	1	
12	a) Wavelength = $17.5 \times 2 = 35$ cm $= 0.35$ m	1	3
	b) $v = \frac{D}{t}$ $v = 700$ m/s Frequency $= \frac{700}{0.35} = 2000$ Hz	1 1	
13	a) Double	1	3
	b) Correct Ray diagram of image formation	2	
14A	a) 25 cm	1	3
	b) More than 25 cm	1	
	c) less	1	
14B	a) At a certain distance from the eye	1	3
	b) The size of the eyeball is larger, the power of the lens is more	1	
	Use concave lens of suitable focal length	1	

15	In the upward direction Fleming's left hand rule (Explanation specifying the upward direction of force, using the direction given by Fleming's left hand rule)	1 1	3
	Force is experienced by a current carrying conductor placed in a magnetic field its direction is given by Fleming's left hand rule.	1	
16	a) At A – anticlockwise direction b) At B – clockwise direction or any relevant answer	1	3
	c) If the direction of the current in the conductor loop is clockwise, the direction of the magnetic field will be into the coil. Using right hand thumb rule.	2	
17A	a) $H = P \times t$ $H = 800 \times 10 \times 60$ $H = 480000$ J	½ ½	3
	b) $P = \frac{V^2}{R}$ $R = \frac{V^2}{P} = 240 \times \frac{240}{800} = 72\Omega$ $P = \frac{V^2}{R} = 120 \times \frac{120}{72} = 200$ W P = 200 W	1 1	
17B	a) When there is a potential difference of 230 V, the device works with a power of 1000 W.	1	3
	b) $R = \frac{V^2}{P}$ R = 52.9 Ω	½ ½	
	c) P = 250 W $P = \frac{V^2}{R}$ $V^2 = PR = 250 \times 52.9 = 13225$ In the label X stands for, V = 115 V	1	
18A	a) $E = \frac{(L \times h)}{t}$ E = 4000 N	2	4
	When lifted directly W = F × s = 12000 × 3 = 36000 J	1	
	When lifted through the inclined plane W = F × s = 4000 × 9 = 36000 J	1	

18B	a) Pitch is the distance between the two consecutive threads.	1	4
	Pitch = $\frac{30}{15}$ = 2 cm Length of one thread =10 cm Mechanical advantage = $\frac{\text{Length of one thread}}{\text{pitch}}$ Mechanical advantage = $\frac{10}{2}$ = 5	1 1 1	