

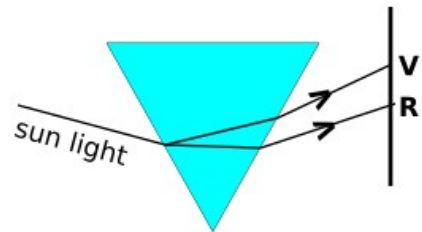
SSLC EXAMINATION: 2024

PHYSICS

Max. Score:40

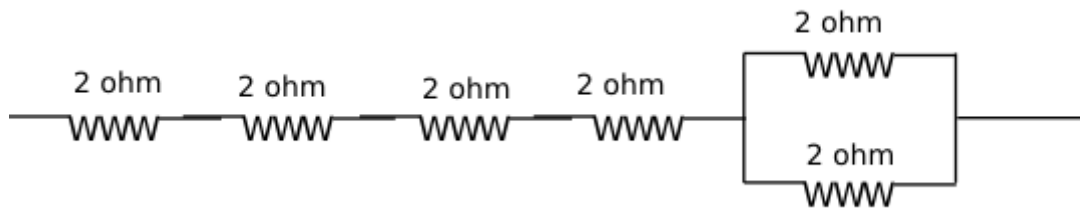
Time: 1½ hrs

- | | |
|---|---|
| 1. Solar energy/wind energy/geothermal energy | 1 |
| 2. Myopia | 1 |
| 3. Nuclear fission | 1 |
| 4. $f = 1/P = 1/2 = 0.5 \text{ m}$ Or $f = 50 \text{ cm}$ | 1 |
| 5. $V = W/Q = 12/3 = 4 \text{ V}$ | 1 |
| 6. a. Fleming's left Hand Rule | 2 |
| b.i.reverse the direction of current. ii. Reverse the direction of magnetic field. | |
| 7. a.Right Hand Thumb rule:If you imagine holding a current carrying conductor in your right hand with thumb pointing towards the direction of current, then the direction in which your fingers curl, gives the direction of magnetic field. | |
| b.i. increase current ii. Increase the number of turns. | |
| 8. a. Sound Energy – The diaphragm vibrates – The coil vibrates in the magnetic field – Electric signal | 2 |
| b. Electromagnetic induction | |
| 9. | 2 |

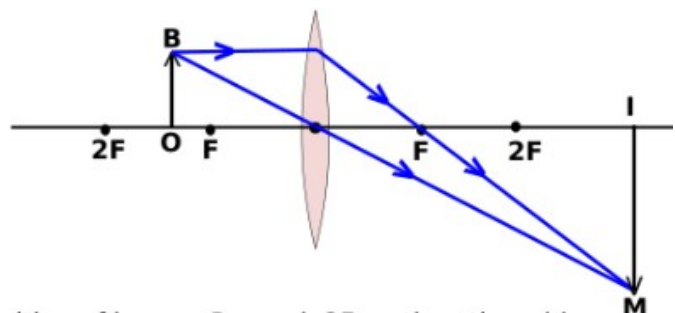


Violet,Indigo,blue,green,yellow,orange&red will be seen on the screen as the order shown.

- | | |
|--|---|
| 10. a. tungsten. | 2 |
| b. i. High resistivity ii. Ability to emit white light on heating iii. High melting point. | |
| 11. a. 6 | 2 |
| b. | |



- | | |
|---|---|
| 12. a. No. Magnetic field is developed around both the solenoids. But in the first circuit, the field is steady and that in the second circuit is varying. | 3 |
| b. Circuit.2. | |
| Self induction: Self-induction is the phenomenon where an electromotive force (emf) is induced in a coil when a varying current passes through the same coil. | |
| 13. Concave mirror – Always forms enlarged image – used by dentist | 3 |
| Convex mirror – Always forms diminished image – Used as a rear view mirror in vehicles | |
| Plane mirror – The size of the image and the size of the object will be equal. - To see the face | |
| 14. a. | 3 |
| b. Enlarged,inverted and real. | |



15. a. It is the heat energy liberated by complete combustion of 1 kg fuel. 3
 b.i. Availability of sufficient oxygen.
 ii. Must be dry (for solid fuels)
 iii. Liquid fuels must evaporate easily.
 c.i. high calorific value, low pollution, high availability, low cost
16. a. Current, $I = V/R = 230/460 = 0.5 \text{ A}$ 3
 b. Power, $P = VI = 230 \times 0.5 = 115 \text{ W}$
 c. $H = I^2Rt = 0.5 \times 0.5 \times 460 \times 10 \times 60 = 69000 \text{ J}$
17. a. Primary coil. 4
 When thick wire is used, resistance of the coil can be minimised. There are two benefits for this.
 i. Overheating of the coil can be prevented.
 ii. Efficiency of the transformer can be increased/ Energy loss can be minimised.
 b. It is through mutual induction power is transferred from primary coil to the secondary coil.
 When a variable current is passed through one of the two adjacent coils, an emf is induced in the second coil. This phenomenon is called mutual induction.
18. a. It indicates that the image is inverted and real. 4
 b. $u = -40 \text{ cm}$
 $m = -4$
 We have $m = -v/u$
 $-4 = -v/-40$
 Or $v = 40 \times -4 = -160 \text{ cm}$
 c. $f = uv/u+v = -40 \times -160 / (-40 + -160) = 40 \times 160 / -200 = -32 \text{ cm}$
19. a. When light travels from a medium of higher optical density to a medium of lower optical density, the angle of incidence at which the angle of refraction is 90° is called Critical angle. 4
 b. The ray will be reflected back to the glass.
 c. total internal reflection: When light travels from a medium of higher optical density to a medium of lower optical density, if the angle of incidence is greater than the critical angle, the light will be reflected back into the same medium instead of undergoing refraction.
20. a. Persistence of vision. 4
 b. Red undergoes least scattering as its wavelength is long.
 c. Blue is a colour having shorter wavelength. So it undergoes most scattering at the atmosphere and spreads in all directions.
 d. Tyndal effect