

10th ICSE Physics Test

Topic: Refraction Through Spherical Surfaces,
Spectrum & Current Electricity Covered

Time: 1.5 hr.

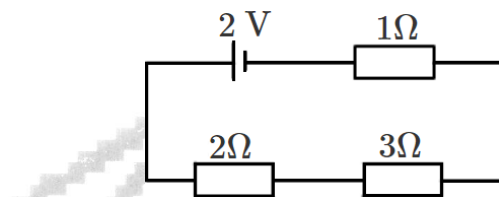
MM: 50

Each question carries 1 mark

- When a white light ray falls on a prism, the ray at its first surface suffers:
(a) No refraction (b) Only dispersion
(c) Only deviation (d) Both deviation and dispersion
- In the spectrum of white light by a prism, the colour of the extreme end opposite to the base of prism is:
(a) Violet (b) Yellow (c) Red (d) Blue
- A ray of light after refraction through a lens emerges parallel to the principal axis of the lens. The incident ray either passes through :
(a) its optical centre
(b) its first focus
(c) its second focus
(d) its centre of curvature of the first surface
- The amount of electric charge passing through a conductor in 10 minutes is 300C, the current following is
(a) 30A. (b) 0.3A. (c) 0.5A. (d) 5A.
- Which of the following units could be used to measure electric charge?
(a) Ampere. (b) Joule. (c) Volt. (d) Coulomb.
- Out of the following, the maximum penetration power is possessed by
(a) alpha particle (b) beta particle
(c) gamma radiations (d) proton
- An electric bulb is rated 220V and 100W. When it is operated on 110V, the power consumed will be—
(a) 100W (b) 75W (c) 50W (d) 25W
- A current of 1 A is drawn by a filament of an electric bulb. Number of electrons passing through a cross section of the filament in 16 seconds would be roughly:
(a) 10^{20} (b) 10^{16} (c) 10^{18} (d) 10^{23}
- A ray of light incident on a lens parallel to its principal axis, after refraction passes through or appears to come from:
(a) Its first focus
(b) Its optical centre
(c) Its second focus
(d) The centre of curvature of its second surface

Each Question Carries 3 Marks

1. Calculate the frequency of yellow light of wavelength 550 nm. The speed of light is $3 \times 10^8 \text{ ms}^{-1}$.
2. A concave lens forms the image of an object kept at a distance 20 cm in front of it, at a distance 10 cm on the side of the object.
 - (a) What is the nature of the image?
 - (b) Find the focal length of the lens
3. In the given circuit , potential difference across 3 ohm resistor is ?



4. The focal length of a convex lens is 25 cm. At what distance from the optical centre of the lens an object be placed to obtain a virtual image of twice the size?
5. Explain the cause of dispersion of white light through a prism.
6. The power of a lens is -2.0 D. Find its focal length and its kind.
7. Name the waves (a) of lowest wavelength, (b) used for taking photographs in dark, (c) produced by the changes in the nucleus of an atom, (d) of wavelength nearly 0.1 nm.

Each Question Carries 4 Marks

1. A lens forms the image of an object placed at a distance 15 cm from it, at a distance 60 cm in front of it. Find: (i) the focal length, (ii) the magnification, and (iii) the nature of image.
2. The frequency range of visible light is from $3.75 \times 10^{14} \text{ Hz}$ to $7.5 \times 10^{14} \text{ Hz}$. Calculate its wavelength range. Take the speed of light $= 3 \times 10^8 \text{ m/s}$.
3. Draw any 3 cases of image formation through concave mirror
4. Differentiate between alpha , beta and gamma on the basis of ionization power , penetration power , speed , charge and mass.
5. In the given circuit find
 - (a) Net resistance of circuit
 - (b) reading of ammeter
 - (c) if internal resistance of battery is 0.2 ohm find potential difference of battery

