

Practice set 2

Human Eye and Colourful World

Questions

Answer the following

1 x 5 = 5

1. One cannot see through fog because
 - (a) Refractive index of fog is very high
 - (b) Light suffers dispersion through fog
 - (c) Fog absorbs light
 - (d) Light is scattered by the droplets.
2. Which colour has the maximum speed in glass?
 - (a) Violet
 - (b) Red
 - (c) Green
 - (d) Yellow
3. The scattering of light involves
 - (a) Bouncing of light from the surface
 - (b) Bending of light through a medium
 - (c) Breaking down in its component colours.
 - (d) Change in the direction of light.

In the following questions, the assertion and reason have been put forward. Read the statements carefully and choose correct alternative form the following:

- (a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion**
 - (b) The Assertion and the Reason are correct and the Reason is not the correct explanation of the Assertion**
 - (c) Assertion is true but Reason is false**
 - (d) Assertion is false but Reason is true**
4. Assertion: The near point of hypermetropic eye is more than 25cm away.
Reason: Hypermetropia is corrected using concave lens of suitable focal length.
 5. Assertion: Reddening of the sun at the sunrise and sunset is due to the reflection of sunlight.
Reason: Scattering of light results in the reddening of sun at sunrise and sunset.

Answer the following

2 x 4 =8

6. Why do stars twinkle?
7. Sun appears to rise 2 minutes before and set 2 minutes later. Give reason.
8. How does the angle of deviation vary if the incident violet light is replaced by red light?

9. Does dispersion occur if light passes through a plane glass slab. Explain

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Answer the following

3 x 4 =12

10. A person can see objects if they are placed at 1.5m. What kind of lens would be required to read a book at a distance of 25cm? What kind of eye defect it is? What will be the power of the lens used?

11. Draw a ray diagram for dispersion of white light passing through a glass prism. Can we get the same phenomenon if the white light is replaced by yellow light?

12. Explain with reason what will be the colour of sky to an observer on the surface of the earth. What will be the colour of sky for an astronaut staying inside the international space station orbiting around the earth? Give reason.

13. What is a spectrum? How can we recombine the components of white light after a glass prism has separated them? Illustrate your answer with a diagram.