Light and its Properties

A. Choose the correct answer:

1. What is the speed of light in a vacuum?

(a) 300 km/s
(b) 3,000 km/s
(c) 30,000 km/s
(d) 300,000 km/s

2. Which of the following is NOT a property of light?

(a) Light travels in a straight line
(b) Light can be reflected
(c) Light can be absorbed
(d) Light travels only in curved paths

3. When light passes through a prism, it splits into a spectrum of colors. This is called:

(a) Reflection
(b) Refraction
(c) Dispersion
(d) Diffraction

B. Fill in the Blanks:

1. Light travels in the form of _____ waves.
2. The phenomenon of light bending as it passes from one medium to another is called _____.
3. The colors of the rainbow are formed when light passes through a _____.

C. Case Study:

During a science experiment, a student directed a beam of white light through a triangular prism. The light split into multiple colors, creating a rainbow. The teacher explained that this happens because light bends as it passes through the prism, with each color bending by a different amount.

Case Study Questions:

1. What was the main observation in this experiment?
2. Why did the light split into different colors when passed through the prism?
3. What is the name of the phenomenon that causes this splitting of light?

4. Why does each color of light bend by a different amount?

D. Short Answer Questions:

1. What is reflection of light, and give an example?
2. Explain refraction of light with an example.
3. What are the primary colors of light?

E. Long Answer Questions:

1. Describe the different properties of light, such as reflection, refraction, and dispersion.
2. Explain how a prism can be used to split white light into its constituent colors.
3. Discuss the importance of light in our daily life, including its uses in vision and various technologies.