TEST PAPER: PHYSICS

Time: 45 Minutes **Class:** C.B.S.E. 10

Max. Marks: 30 Marks **Date:** 31st October 2018

Marking Scheme: *All questions carry 10 marks each. Subparts (A) and (B) carry 3 marks each and subpart (C) carries 4 marks.*

Question 1:

1. A convex mirror used for rear-view on an automobile has a radius of curvature of 3 m. If a bus is located at 5 m from this mirror, find the position, nature and size of the image.

2. An object is placed at a distance of 15 cm in front of a concave lens of focal length 30 cm. List 4 characteristics (image position, nature, magnification, etc.) of the image formed by the lens.

3. Draw the following ray diagrams – show object, mirror and image in your diagrams. Also mark the location of pole, focus and centre of curvature.
    i. An object is kept 40 cm in front of a concave mirror of focal length 15 cm
    ii. An object is kept 10 cm in front of a concave mirror of focal length 15 cm

Question 2:

1. Why do we prefer convex mirror as a rear-view mirror in vehicles?

2. Draw a ray diagram to show refraction of light through a rectangular glass slab.

3. Draw the following ray diagrams – show object, lens and image in your diagrams. Also mark the location of optical centre, and the two foci.
    i. An object is kept 40 cm in front of a convex lens of focal length 15 cm
    ii. An object is kept 40 cm in front of a concave lens of focal length 15 cm

Question 3:

1. The speed of light, in a given medium is 2/3rd of its speed in vacuum. What is the absolute refractive index of the medium?

2. What is meant by power of a lens? Write its SI unit. A student uses a lens of focal length 40 cm and another of -20 cm. Write the nature and power of each lens.

3. Answer the following:

    a. State the laws of **refraction** of light.
    b. Explain the term 'absolute refractive index of a medium' and write an expression to relate it with the speed of light in vacuum.