TEST PAPER: PHYSICS

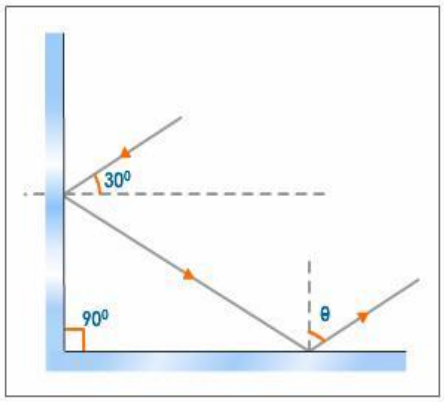
Time: 45 Minutes **Class: 10th C.B.S.E.**

Max. Marks: 30 Marks **Date: 18th April, 2018**

Marking Scheme: *Three questions carry 10 marks each. Question 1 has 10 MCQ's of 1 mark each. Questions 2, 3 and 4 have 3 subparts each. Subparts A and B carry 3 marks each and subpart C carries 4 marks. Question 1 is compulsory. Attempt any 2 out of questions numbers 2, 3 and 4.*

Question 1:

1. What is the value of θ in the following diagram?



A. 30° B. 45°

C. 90° D. 60°

2. The centre of the sphere of which the spherical mirror forms a part is called

A. centre of curvature B. focus

C. pole D. vertex

3. The focus of a concave mirror is _____.

A. real B. virtual

C. undefined D. at the pole

4. A converging mirror is known as _____.

A. convex mirror B. plane mirror

C. concave mirror D. cylindrical mirror

5. An object is at a distance = 2m from a plane mirror. The distance between the object and the image is:

A. 4 m B. 3 m

C. 2 m D. 1 m

6. The angle between the incident & reflected rays when a ray is incident normally on a plane mirror is

A. 90° B. 45°

C. 180° D. 0

7. An object of height = 5 cm forms an inverted image of height 2 cm. The value of magnification m is:

A. 2.5 B. 0.4

C. -2.5 D. -0.4

8. A ray of light passing through the _____ retraces its path.

A. focus B. centre of curvature

C. pole D. vertex

9. The image formed by a plane mirror is always

A. real and erect B. virtual and erect

C. real and inverted D. virtual and inverted

10. The focal length of a mirror is +15 cm. Identify the type of mirror.

A. Concave mirror B. Plane mirror

C. Convex mirror D. Cylindrical mirror

Question 2:

An object of height 2 m is placed at distance of 4 m from a concave mirror having focal length 2 m.

A. Use the mirror formula to obtain:
   (i) The distance of the image formed from the mirror (v)
   (ii) Magnification (m)
   (iii) The height of the image formed (h_i)

B. State the characteristics of the image formed above.

C. Verify the result obtained in **Part (A)** by drawing a neatly labelled ray diagram to obtain the image (Use suitable scale and show any two rays of your choice to form the image)

Question 3:

An object of height 2 m is placed at distance of 4 m from a convex mirror having focal length 2 m.

A. Use the mirror formula to obtain:
   (i) The distance of the image formed from the mirror (v)
   (ii) Magnification (m)
   (iii) The height of the image formed (h_i)

B. State the characteristics of the image formed above.

C. Verify the result obtained in **Part (A)** by drawing a neatly labelled ray diagram to obtain the image (Use suitable scale and show any two rays of your choice to form the image)

Question 4:

A. State the five characteristics of the image formed due to reflection on a plane mirror.

B. Label parts 1, 2, 3 and 4 in the adjacent diagram. Name the mirror shown.

C. 4 incident rays are shown in the adjacent diagram. Redraw the diagram in your answer booklet and trace the path of each ray on reflection.