Subject: Science **Worksheet:**

Class: 10 Name of Student……

ASSESSMENT WORKSHEET (LIGHT)

Question 1 to 5 carry 1 marks each. Question 6 and 7 carry 2 marks each. Question 8 and 9 carry 3 marks each and question 10 carry 5 marks.

Read the following paragraph and answer the questions from 1 to 5

The spherical mirror forms different types of images when the object is placed at different locations. When the image is formed on screen, the image is real and when the image does not form on screen, the image is virtual. When the two reflected rays meet actually, the image is real and when they appear to meet, the image is virtual.
A concave mirror always forms a real and inverted image for different positions of the object. If the object is placed between the focus and pole. the image formed is virtual and erect.
A convex mirror always forms a virtual, erect and diminished image. The convex mirror is used as a rear view mirrors in automobiles because it can form small and erect image of an object.

(1) When an object is placed at the centre of curvature of a concave mirror, the image formed is
(a) larger than the object (b) smaller than the object (c) same size as that of the object (d) highly enlarged

(2) No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be
(a) Plane (b) Concave (c) Convex (d) either plane or convex.

(3) A convex mirror has wider field of view because
(a) The image formed is much smaller than the object. (b) The image formed is much closer to the mirror
(c) both (a) and (b) (d) none of these.

(4) To get an image larger than the object, one can use
(a) Convex mirror (b) Concave mirror (c) either a convex mirror or a concave mirror (d) Plane mirror.

(5) If the image is virtual, erect and enlarged for the object position between pole and focus of mirror. Mirror is
(a) Plane (b) Concave (c) Convex (d) either plane or convex.

(6) (i) Explain why a ray of light passing through the centre of curvature of a concave mirror, is reflected along the same path.
(ii) The speed of light reduced to 0.5 times when it enters from air to another medium. Find the refractive index of medium.

(7) The outer surface of a hollow sphere of aluminum of radius 50 cm is to be used as a mirror. What will be the focal length of this mirror? Which type of spherical mirror will it provide?

(8) An object 2 cm in size is placed 30 cm in front of a concave mirror of focal length 15 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? What will be the nature and the size of the image formed?

(9) At what distance should an object be placed from a convex lens of focal length 18 cm to obtain an image at 24 cm from it on the other side. What will be the magnification produced in this case?

(10) Draw the ray diagram in each case to show the position of the image when the object is placed:

(i) at the centre of curvature of a concave mirror
(ii) between the pole P and focus F of a concave mirror
(iii) in front of a convex mirror
(iv) at 2F of a convex lens
(v) in front of a concave lens