- **Q.2** A point object at *O* and a diverging lens is shown in the figure given below. Find the position of final image formed from *P*.



**Q.3** A concave lens forms the image of an object such that the distance between the object and image is 10 cm and the magnification produced is  $\frac{1}{4}$ . The focal length of the lens will be **(A)**8.6 cm **(B)**6.2cm **(C)**10cm **(D)**4.4cm

- Q.4 A convex lens forms a real image three times larger than the object on a screen. Object and screen are moved until the image becomes twice the size of the object. If the shift of the object is 6 cm, the shift of screen is
   (A)36 cm
   (B)72cm
   (C)18cm
   (D)9cm
- Q.5 An equi-convex lens of focal length 'f' is cut into two parts along its principal axis, then
  (A)Refractive index of the lens changes.
  (B)Radii of curvature of lens changes.
  (C)Intensity of image formed by each part will reduce to half.
  (D)Intensity of image formed by each part becomes twice.
- **Q.6** A split lens has its two parts separated by distance a and its focal length is f.An object is placed at a distance  $\frac{3f}{2}$  on the axis of the undivided lens as shown. The distance between the images formed is



**Q.7** A convex lens is cut in half along its principal axis and the two halves are separated by a distance of 12 cm. An object is placed 6 cm in front of one lens as shown in figure. Two sharp images are formed on the screen placed 80 cm from the object. What is the focal length of the lens ?



- Q.8 An object is kept at a distance of 16 cm from a thin lens and the image formed is real. If the object is kept at a distance of 6 cm from the same lens, the image formed is virtual. If the sizes of the images formed are equal, the focal length of the lens will be
   (A)15 cm
   (B)17cm
   (C)21cm
   (D)11cm
- **Q.9** Focal length of concave lens shown in figure is 60 cm. For an object placed at c on principal axis, find image position and its magnification



**Q.10** Focal length of the convex lens shown in figure is 20 cm. Find the position of image when the object is at 30 cm and magnitude of image velocity.



(A)30 cm,  $\sqrt{292}$  m m/s (C)60 cm,  $\sqrt{292}$  m m/s

**(B)**60 cm,  $\sqrt{190}$  m m/s **(D)**30 cm,  $\sqrt{192}$  m m/s

## ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10
Sol.	(B)	(A)	(D)	(A)	(C)	(C)	(B)	(D)	(A)	(C)