

# Light – Optics – Spherical Mirrors

*20 marks, 30 min*

1. Find the focal length of a convex mirror whose radius of curvature is 32 cm. (1 mark)
2. A concave mirror produces three times enlarged real image of an object placed at 10 cm in front of it. Where is the image located? If it's a virtual image, where will it be located? (3 marks)
3. An object, 4.0 cm in size, is placed at 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and the size of the image. (4 marks)
4. Why do we prefer convex mirror as rear view mirror in vehicles? (2 marks)
5. What are the users of a concave mirror? (2 marks)
6. A convex mirror has its radius of curvature 20 cm. Find the position of the image of an object placed at a distance of 12 cm from the mirror. Is the image real or virtual? (2 marks)
7. An object of length 2.5 cm is placed at a distance of  $1.5 f$  from a concave mirror where  $f$  is the magnitude of the focal length of the mirror. The length of the object is perpendicular to the principal axis. Find the length of the image. Is the image erect or inverted? (3 marks)
8. A concave mirror has a focal length of 20 cm. An object is placed 10 cm in front of the mirror.
  - (a) Find the position of the image. (1 mark)
  - (b) Describe the nature, size, and orientation of the image. (1 mark)
  - (c) If the object is moved to 40 cm in front of the mirror, where will the new image form? (1 mark)