Name ……Stream ……No……GHS 2020

# S.2 SPHERICAL MIRRORS

- Circle the right objective in Section A
- For Section B use the spaces provided

## SECTION A

1. A concave spherical mirror has a focal length of 20 cm. An object is placed 10 cm in front of the mirror on the mirror's axis. Where is the image located?
   A. 20 cm behind the mirror
   B. 20 cm in front of the mirror
   C. 6.7 cm in front of the mirror
   D. 6.7 cm behind the mirror

2. A light ray, traveling obliquely to a concave mirror's surface, crosses the axis at the mirror's focal point before striking the mirror's surface. After reflection, this ray
   A. travels parallel to the mirror's axis.
   B. passes through the mirror's focal point.
   C. travels at right angles to the mirror's axis.
   D. passes through the mirror's center of curvature.

3. A ray of light parallel to the optic axis of a concave mirror is reflected back
   A. through the center of the sphere.
   B. through the focal point.
   C. parallel to the optic axis.
   D. as if it came from the focal point.

4. The back surfaces of automobile headlights are curved
   A. because inverted, real images of filaments shine brighter.
   B. to concentrate light in one direction.
   C. for structural reasons not related to optics.
   D. to get multiple images of the filament.

5. A ray of light passing through the focal point at an angle to the optic axis of a concave mirror is reflected back
   A. through the center of the sphere.
   B. through the focal point.
   C. parallel to the optic axis.
   D. in the horizontal direction.

6. A mirror which have reflected surface bugles outwards is called a
   A. convex mirror
   B. concave mirror
   C. plane mirror
   D. cosmetic mirror

7. In concave mirror, size of image depends upon
   A. size of object
   B. position of object
   C. area covered by object
   D. shape of object

8. After reflection from a concave mirror, rays of light parallel to principal axis converge to a point which is called
   A. pole
   B. centre of curvature
   C. focal length
   D. principal focus

9. What type of image is formed when an object is placed at a distance of 1.5 focal lengths from a convex mirror?
   A. erect and virtual
   B. inverted and virtual
   C. erect and real
   D. inverted and real

10. The diameter of a reflecting surface of a spherical mirror is called
    A. centre of curvature
    B. radius of curvature
    C. pole
    D. aperture

## SECTION B.

11. A converging (concave) mirror is cut from a sphere whose radius is 20 cm. What will be the focal length of the mirror? (1mk)

12. (a) Explain the difference between a real image and a virtual image. (2mks)

(b) Explain when a concave mirror produces a real image and when it produces a virtual image. (2mks)

(c) Will a convex mirror ever produce a real image? Defend your answer. (2mks)

13. A convex mirror has a radius of curvature of 24 cm. If an object 6 cm tall is placed 6 cm from the front of the mirror, describe the image using a ray diagram. (Use the graph paper provided). (6mks)

14. When you look through an astronomical reflecting telescope, will the image you see be right-side up or inverted? Why? (2mks)

15. Can the image produced by a concave mirror ever appear between the focus of the mirror and the mirror? Defend your answer. (2mks)

16. (a) With the aid of the diagram explain why a parabolic mirror is most suitable for use in car head lights. (4mks)

**END.**