PHYSICS

BOOKS - ICSE

LIGHT

Topic 1 Reflections Of Light 2 Marks Questions

1. State the two laws of reflection.

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2. A light ray is incident normally on a plane mirror.

What is the angle of incidence?

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3. A light ray is incident normally on a plane mirror.

What is the direction of reflected ray? Show it on the diagram.

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4. Differentiate between a real and a virtual image.

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5. What do you mean by reflection of light?

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6. The incident ray and the reflected ray from a mirror are mutually perpendicular to each other.

Find the angle of incidence.

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7. A man standing in front of a plane mirror finds his image at a distance 6 metre from himself. What is the distance of man from the mirror?

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8. With the help of diagrams, explain the difference between the regular and irregular reflection.

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9. Differentiate between the reflection of light from a plane mirror and that from a plane sheet of paper.

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10. A light ray is incident normally on a plane mirror.

What is its angle of incidence?

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11. A light ray is incident normally on a plane mirror.

What is the direction of reflected ray? Show it on a diagram.

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12. The letters on the front of an ambulance are written laterally inverted like 

.Give reason.

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Topic 1 Reflections Of Light 3 Marks Questions

1. Draw a ray diagram showing the formation of image of a point object by a plane mirror.

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2. Write three characteristics of the image formed by a plane mirror.

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3. In a dark room, a parallel beam of light falls on a plane mirror and another parallel beam of light falls on a white wall. The light reflected by the mirror can be seen only in a certain direction, but the reflected light from the wall can be seen from anywhere. Give reason.

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4. An optician while testing the eyes of a patient keeps a charge of letters 3 m behind

the patient and asks him to see the letters on the image of chart formed in plane mirror kept at distance 2 m in front of him. At what distance is the chart seen by the patient?

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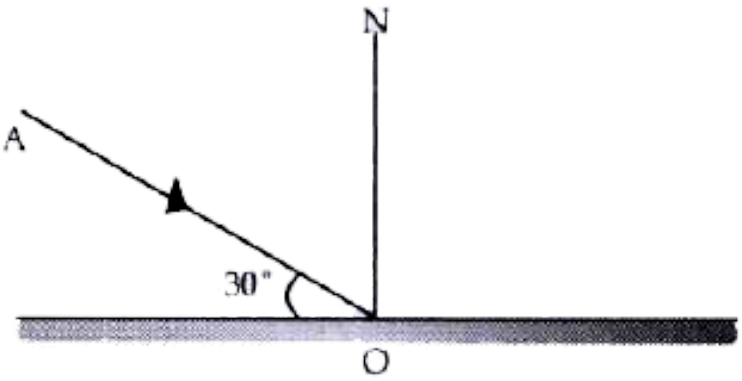
5. Fig. shows an incident ray AO and the normal ON on a plane mirror. The angle which the incident ray AO makes with mirror is 30°.

Find the angle of incidence.



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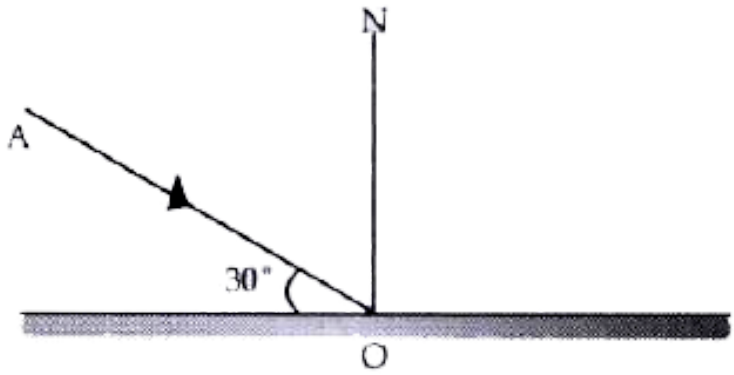
6. Fig. shows an incident ray AO and the normal ON on a plane mirror. The angle which the incident ray AO makes with mirror is 30°.

Draw the reflected ray



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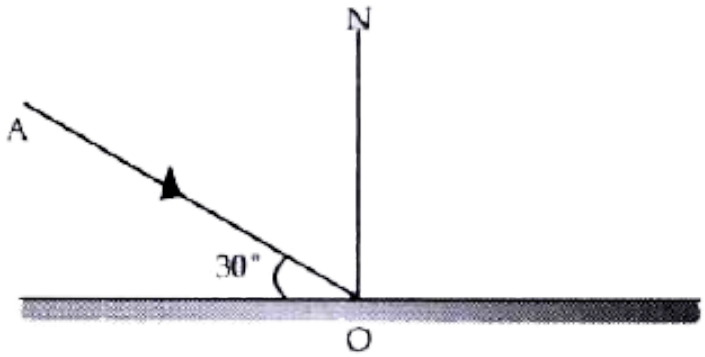
7. Fig. shows an incident ray AO and the normal ON on a plane mirror. The angle which the incident ray AO makes with mirror is 30°. The angle between the incident and reflected

rays.



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8. The diagram shows a point object P in front of a plane mirror MM^1.

Complete the diagram by taking two rays from the point P to show the formation of its

image.

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9. The diagram shows a point object P in front of a plane mirror MM^1.

In the diagram, mark the position of eye to see the image.

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10. The diagram shows a point object P in front of a plane mirror MM^1.

Is the image formed real or virtual ? Explain why?

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11. The diagram below in fig shows an object XY in front of a plane mirror MM_1. Draw on the diagram, path of two rays from each point X and Y of the object to show the formation of

its image.

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12. Write three characteristics of the image formed by a plane mirror?

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13. How is the position of an image related to the position of the object in a plane mirror ?

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14. Two plane mirrors are placed making an angle θ in between them. Write an expression for the number of images formed of an object placed in between the mirrors. State the condition, if any.

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15. State the number of images of an object placed between two mirrors, formed in each case when mirrors are inclined to each other at 90°

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16. State the number of images of an object placed between two mirrors, formed in each case when mirrors are inclined to each other at 60°

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17. Two plane mirrors are placed making an angle θ° in between them. For an object placed in between the mirrors, if angle is gradually increased from 0° to 180°, how will the number of images change: increase, decrease or remain unchanged?

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18. An object is placed (i) asymmetrically (ii) symmetrically, between two plane mirrors inclined at an angle of 50°. Find the number of images formed.

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19. State two uses of a plane mirror.

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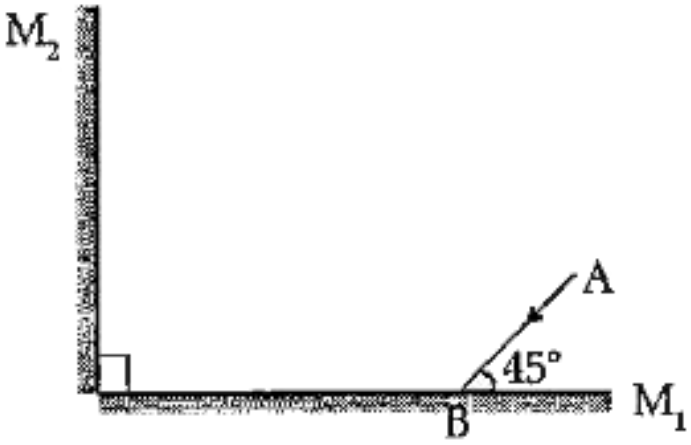
Topic 1 Reflections Of Light 4 Marks Questions

1. Complete the path of the ray AB over plane mirrors M_1 and M_2 and labed all the angles of incidences.



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2. What is meant by lateral inversion of an image in a plane mirror? Explain it with the help of a ray diagram.

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3. An object is at a distance 25 cm in front of a plane mirror. The mirror is shifted 5 cm away from the object. Find: (i) the new distance between theobject ad its image, and (ii) the

distance between the two positions of the image.

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4. Explain the following terms :

Plane mirror

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5. Explain the following terms :

Incident ray

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6. Explain the following terms :

Reflected ray

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7. Explain the following terms :

Angle of incidence

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8. Explain the following terms :

Angle of reflection

Draw diagram/diagrams to show them.

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9. How many images are formed for a point object kept in between the two plane mirrors at right angles to each other? Show them by drawing a ray diagram.

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10. Two plane mirrors are arranged parallel and facing each other at some separation. How many images are formed for a point object kept in between them? Show the formation of images with the help of a ray diagram.

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Topic 2 Spherical Mirrors 2 Marks Questions

1. Define the terms focus and focal length of a concave mirror. Draw diagram to illustrate your answer.

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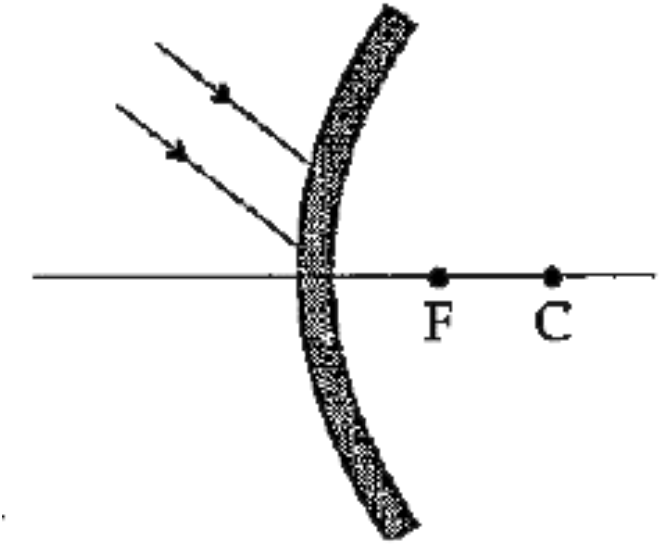
2. Complete the ray diagram as shown to show the formation of image for parallel rays incident on a convex mirror. State the position,

nature and size of the image formed.



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3. What is the focal length of a concave mirror of radius of curvature 16.0 cm?

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4. What is a spherical mirror?

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5. The radius of curvature of a convex mirror is 40 cm. Find its focal length.

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6. Name the two kinds of spherical mirrors and distinguish between them.

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7. The focal length of a concave mirror is 10 cm. Find its radius of curvature.

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8. State the direction of incident ray which after reflection from a spherical mirror retraces its path. Give a reason to your answer.

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9. The image formed by a convex mirroris of size one third the size of object. How are u and v related?

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10. The erect image formed by a concave mirror is of size double the size of object. How are u and v related?

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11. The magnification for a mirror is -3. How are u and v related?

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12. (a) For what position of object, the image formed by a concave mirror is magnified and erect?

(b) State whether the image in part (a) is real or virtual?

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13. State the position of object for which the image formed by a concave mirror is of same size.

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14. Write three characteristics of the image formed by a plane mirror.

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15. What is a real image?

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16. What type of spherical mirror can be used to obtain a real image of an object?

Does the mirror mentioned in part (b) form real image for all locations of the object?

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17. Discuss the position and nature of image formed by a convex mirror when an object is moved from infinity towards the pole of mirror.

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18. Name the kind of spherical mirror used to obtain : A real and enlarged image

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19. Name the kind of spherical mirror used to obtain : A virtual and enlarged image

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20. Name the kind of spherical mirror used to obtain : A virtual and diminished image.

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21. Name the kind of spherical mirror used to obtain : A real and diminished image.

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22. What may be the maximum distance of the image in a convex mirror can be obtained?

What will be the location of object then?

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Topic 2 Spherical Mirrors 3 Marks Questions

1. An object is brought from a far distance towards a concave mirror. How do the nature, position and size of image change?

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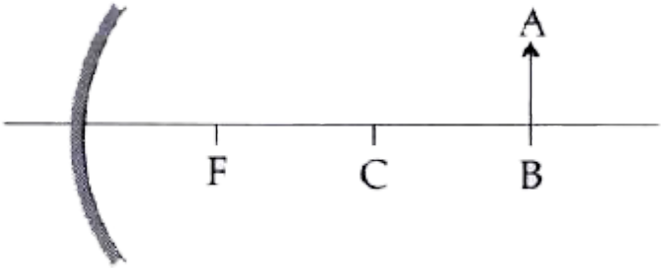
2. Copy and complete the following ray diagram to obtain the image of the object AB kept in front of the concave mirror.



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3. An object of height 20 cm is kept at a distance of 48 cm in front of a concave mirror

of focal length 12 cm. If the mirror forms a virtual, diminished image of the object then calculate the distance of the image from the mirror.

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4. An object of height 20 cm is kept at a distance of 48 cm in front of a concave mirror of focal length 12 cm. If the mirror forms a virtual, diminished image of the object then calculate the magnification

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5. Define the terms pole, principal axis and centre of curvature with reference to a spherical mirror.

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6. Draw suitable diagrams to illustrate the action of (i) concave mirror, and (ii) convex mirror, on a beam of light incident parallel to the principal axis.

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7. Draw suitable diagrams to illustrate the action of (i) concave mirror, and (ii) convex mirror, on a beam of light incident parallel to the principal axis.

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8. At what distance from a concave mirror of focal length 25 cm should an object be placed

so that the size of image is equal to the size of the object. Draw a ray diagram to show this.

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9. Define the terms focus and focal length of a concave mirror. Draw diagram to illustrate your answer.

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10. Explain the meaning of the terms focus and focal length in case of a convex mirror, with the help of , suitable ray diagram.

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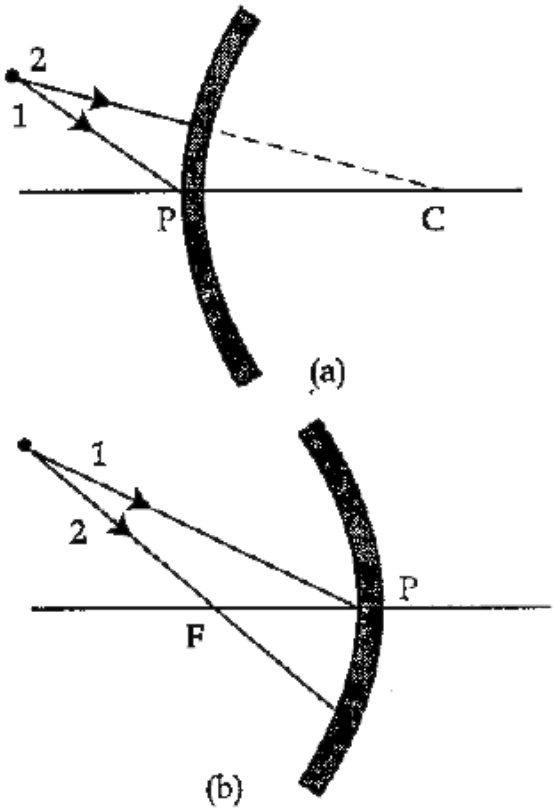
11. Complete the following diagrams in Fig. by drawing the reflected ray for the incident rays

1 and 2.



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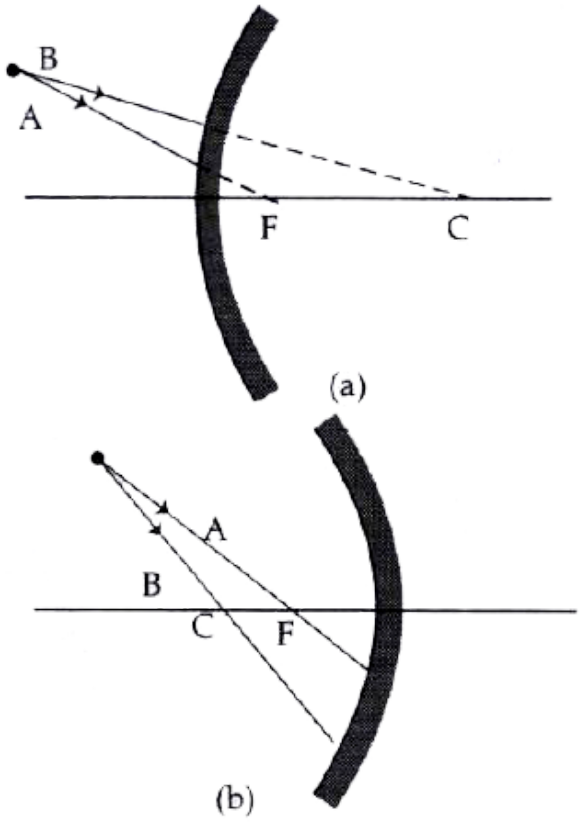
12. Complete the following diagrams in Fig. by drawing the reflected ray for the incident rays A and B.



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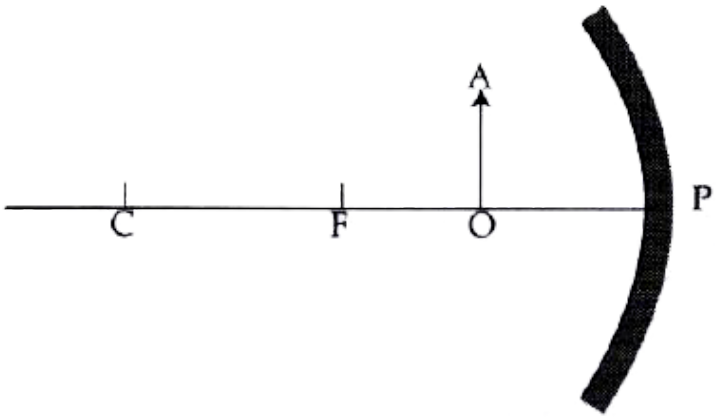
13. Fig. shows a concave mirror with its pole at P, focus F and centre of curvature C. Draw ray diagram to show the formation of image of an object OA.



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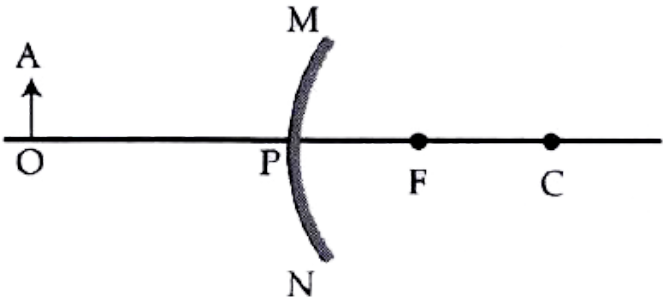
14. The diagram , below shows a concex mirror . C is its centre of curvature and F is its focus.

(i)Draw two rays from A and hence locate the position of image of object OA.

(ii) State three characteristics of the image.



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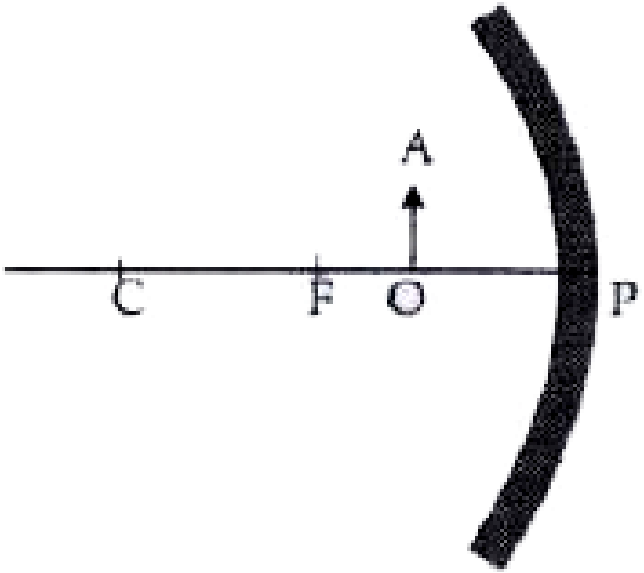
15. Draw a ray diagram to show the formation of image by a concave mirror for an object placed between its pole and focus. State three characteristics of the image.



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16. Draw a ray diagram to show the formation of image by a concave mirror for an object beyond its centre of curvature. State three characteristics of the image.

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17. What is meant by magnification?

Write its expression for spherical mirror.

What is its sign for the

(a) real image

(b) virtual image?

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18. How will you distinguish between a plane mirror, a concave mirror and a convex mirror, without touching them?

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19. State two uses of a concave mirror.

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20. (a) When a concave mirror is used as a shaving mirror, where is the person.s face in relation to the focus of mirror?

(b) State three characteristics of the image seen in part (a).

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21. Which mirror will you prefer to use as a rear view mirror in a truck: Plane mirror or convex Mirror? Illustrate your answer with the help of a ray diagram.

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Topic 2 Spherical Mirrors 4 Marks Questions

1. Differentiate between concave mirror and convex mirror.

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2. A convex mirror forms as erect image of an object of size one third the size of object. If

radius of curvature of convex mirror is 36 cm, find the position of object.

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3. An object of length 4 cm is placed in front of a concave mirror at distance 30 cm. The focal length of mirror is 15 cm. a. Where will the image form? B. What will be the length of image?

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4. An object of length 4 cm is placed in front of a concave mirror at distance 30 cm. The focal length of mirror is 15 cm. a. Where will the image form? B. What will be the length of image?

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5. A concave mirror forms a real image of an object placed in front of it at a distance 30 cm, of size three times the size of object. Find position of image.

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6. A concave mirror forms a real image of an object placed in front of it at a distance 30 cm, of size three times the size of object. Find the focal length of mirror.

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7. A concave mirror forms a virtual image of size twice that of the object placed at a

distance 5 cm from it . Find position of image .

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8. A concave mirror forms a virtual image of size twice that of the object placed at a distance 5 cm from it . Find the focal length of the mirror.

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9. State the two convenient rays that are chosen to construct the image by a spherical mirror for a given object? Explain your answer with the help of suitable ray diagrams.

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