PHYSICS

BOOKS - BAL BHARTI

LENSES

Solved Examples

1. An object is placed vertically at a distance of 20 cm from a convex lens .If the height of the object is 5 cm and the focal length of the lens

is 10 cm, what will be the position, size and nature of the image? How much bigger will the image be as compared to the object?
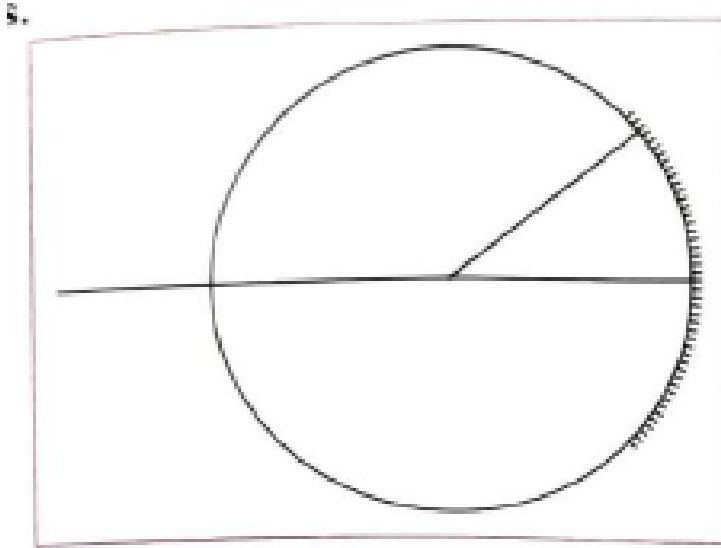
Can You Recall

1. Indicate the following terms related to spherical mirrors in figure: pole , centre of curvature , radius of curvature , principal

focus.

5.

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2. How are concave and convex mirrors constructed ?

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3. What are real and virtual images ? How will you find out whether an image is real or virtual ? Can a virtual image be obtained on a screen ?

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4. What is the cartesian sign convention used for spherical mirrors ?

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1. What is the relation between H_1, H_2, u and v.

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2. Why do we have bring a small object near the eyes in order to see it clearly.

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3. If we bring an object closer than 25 cm from the eyes, why can we not see it clearly even though it subtends a bigger angle at the eye?

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Exercise

1. Answer the following questions :

At which position will you keep an object in

front of a convex lens so as to get a real image of the same size as the object ? Draw a figure.

2. Solve the following examples.

Doctor has prescribed a lens having power +1.5 D. What will be the focal length of the lens? What is the type of the lens and what must be the defect of vision?

3. Solve the following examples.

5 cm high object is placed at a distance of 25 cm from a converging lens of focal length of 10 cm. Determine the position, size and type of the image.

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4. Three lenses having power 2, 2.5 and 1.7 D are kept touching in a row. What is the total power of the lens combination?

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5. An object kept 60 cm from a lens gives a virtual image 20 cm in front of the lens. What is the focal length of the lens? Is it a converging lens or diverging lens?

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