HUMAN EYE

Q1) Why is a normal eye not able to see clearly the objects placed closer than 25 cm?

A) A normal eye cannot see clearly the objects that are placed closer than 25 cm because the power of accomodation of the eye is 25cm which is exhausted.
When the maximum accomodation of the eye is reached, the ciliary muscles of the eye ^ lens cannot become thicker.

Q2) Make a diagram to show how hypermetropia is corrected.
The near point of a hypermetropia eye is 1 m. What is the power of the lens required to correct this defect? Assume that the near point of the normal eye is 25 cm.

A) Hypermetropia can be corrected by using a convex lens. A convex lens converges the incoming light such that the image is formed on the retina. An object at 25cm forms an image at the near point of the hypermetropic eye. Here, near point is 1 m.

Given,
Object distance, $u = -25cm$.

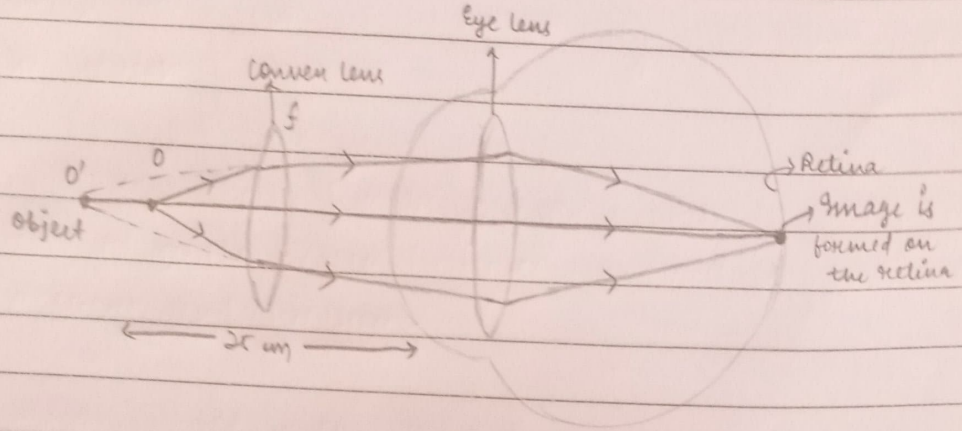
Image distance, $v = -100cm$.

From lens formula, $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$$\frac{1}{-100} - \frac{1}{-25} = \frac{1}{f}.$$

Focal length, $f = 100/3$ cm $= \frac{1}{3}$ m.

$$P = \frac{1}{f} = \frac{1}{1/3} = 3D.$$



Q) What is the far point and near point of the human eye with normal vision?

A) The far point of human eye with normal vision is at infinity and the near point ~~of~~ is at a distance of 25 centimetres from the eye.

Q) A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected?

A) A student has difficulty in reading the blackboard while sitting in the last row.
It shows that he is unable to see distant objects clearly. He is suffering from myopia. This defect can be corrected by using a concave lens.