Answer Key 10.5

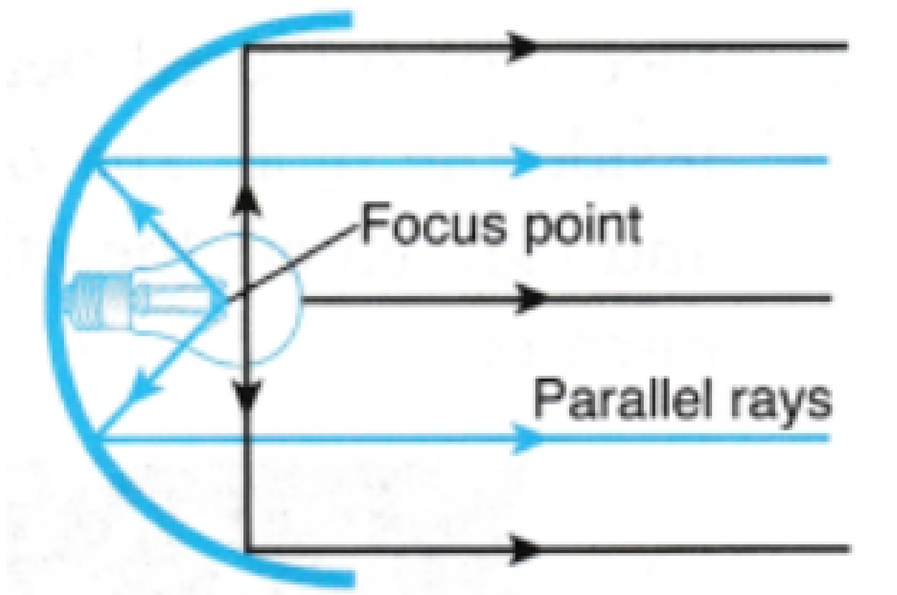
Marks - 25

Case study based questions

10th Science

Light - Reflection and Refraction

Passage - 1 **5 Marks**



A car headlamp

Parabolic mirrors are used in torches and car headlamps as reflectors. A small lamp is placed at the focus point of the mirror to produce parallel rays.

Q1. (2) Very near to the focus of the reflector.

Q2. (4) Concave mirror

Q3. (1) Concave mirror as well as convex lens.

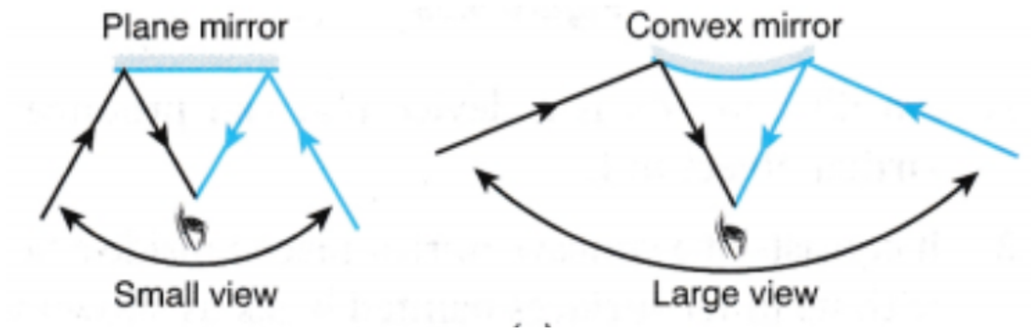
Q4. (2) At focus of the mirror.

Q5. (3) At the centre of curvature.

Passage - 2 **5 Marks**

Answer Key 10.5

Marks - 25



A convex mirror has a wider view than a plane mirror. Convex mirrors are used as blind corner mirrors on the road to help drivers view traffic around sharp corners.

Q1. (1) TRUE

Q2. (1) Principle of reflection

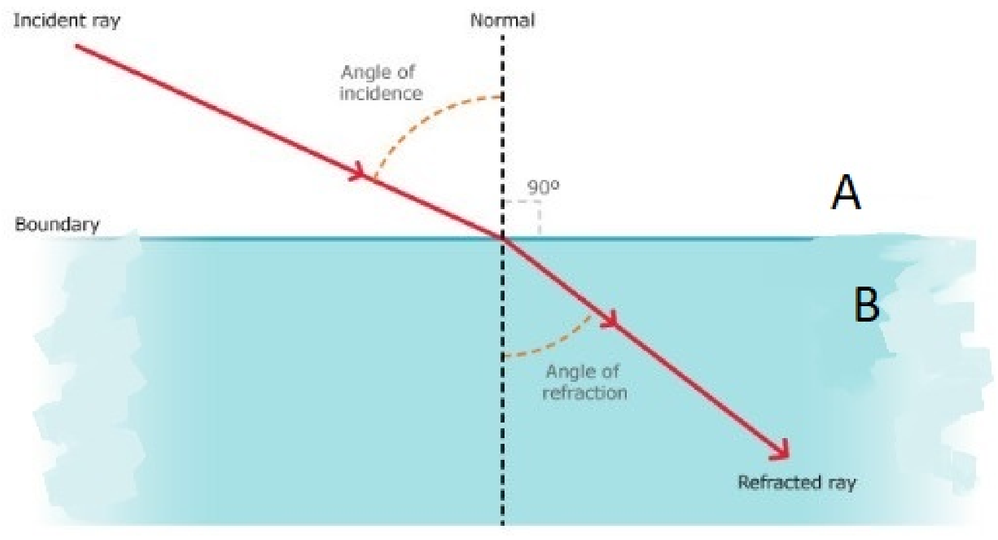
Q3. (2) -2

Q4. (2) At twice the focal length.

Q5. (1) 30 cm

Passage - 3

5 Marks



Manu observes that the absolute refractive indices of two media given as in figure are 2.0 and 1.5 respectively and the speed of light in medium 'B' is 2×10^8

m/s.

Q1. (1) 3×10^8 m/s

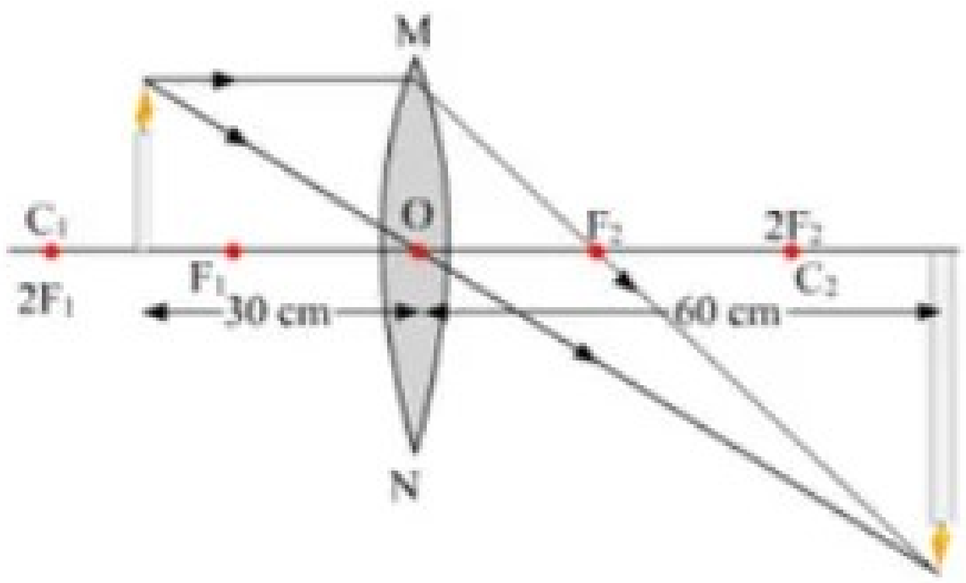
Q2. (2) 1.5×10^8 m/s

Q3. (1) Absolute refractive index

Q4. (2) Air

Q5. (3) n = $\frac{c}{v}$

Passage - 4 **5 Marks**



Manu observes that the image of a candle flame placed at a distance of 30 cm from a spherical lens is formed on a screen placed on the other side of the lens at a distance of 60 cm from the optical centre of the lens. Few questions came to her mind.

Q1. (1) Convex lens

Q2. (3) 20 cm

Answer Key 10.5

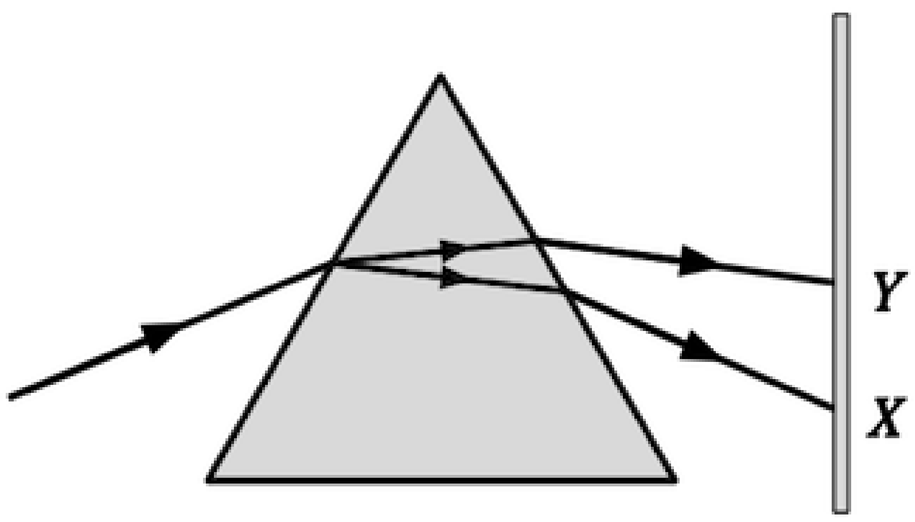
Marks - 25

Q3. (3) -6 cm

Q4. (2) -2

Q5. (2) Positive

Passage - 5 **5 Marks**



A teacher is teaching their students certain concepts related to the refraction of light. In the above figure, a narrow beam of white light is shown to pass through a triangular glass prism. After passing through the prism it produces a rays XY on a screen.

Q1. (2) Lower

Q2. (1) Towards the normal

Q3. (3) Bends at both the surfaces of prism towards its base.

Q4. (1) Prism

Q5. (2) Greater

Answer Key 10.6

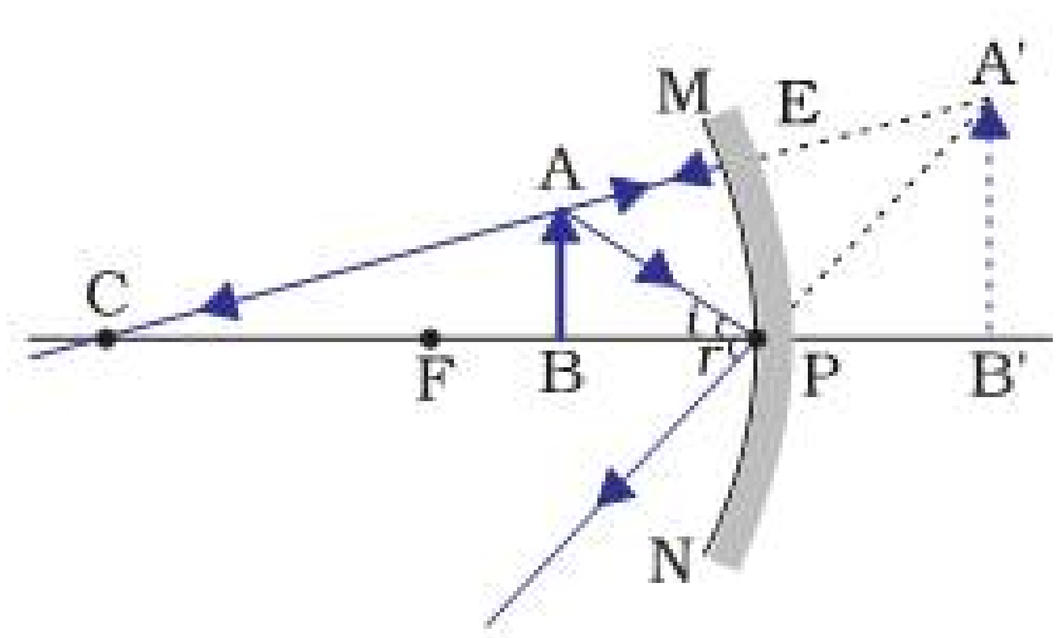
Marks - 25

Case study based questions

10th Science

Light - Reflection and Refraction

Passage - 1 **5 Marks**



Concave mirrors are used by dentists to examine the teeth of a patient. The concave mirror forms a magnified image of the teeth.

Q1. (1) Real

Q2. (2) 37.5 cm

Q3. (1) Beyond C

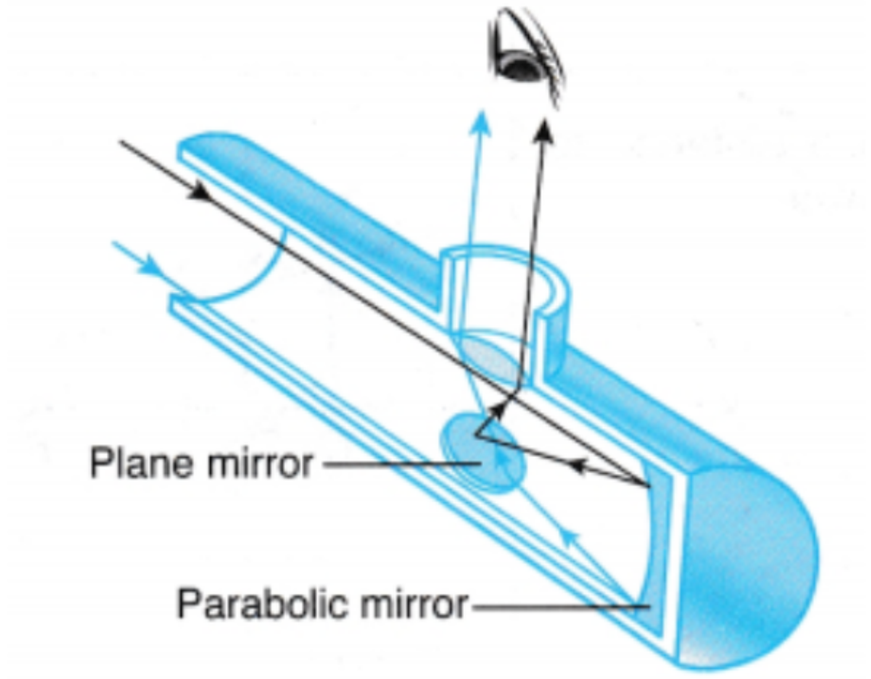
Q4. (2) Virtual and erect

Q5. (3) Highly diminished

Passage - 2 **5 Marks**

Answer Key 10.6

Marks - 25



An astronomical reflecting telescope uses a large parabolic mirror to gather dim light from distant stars. A plane mirror is used to reflect the image to the eyepiece.

Q1. (3) 198 cm

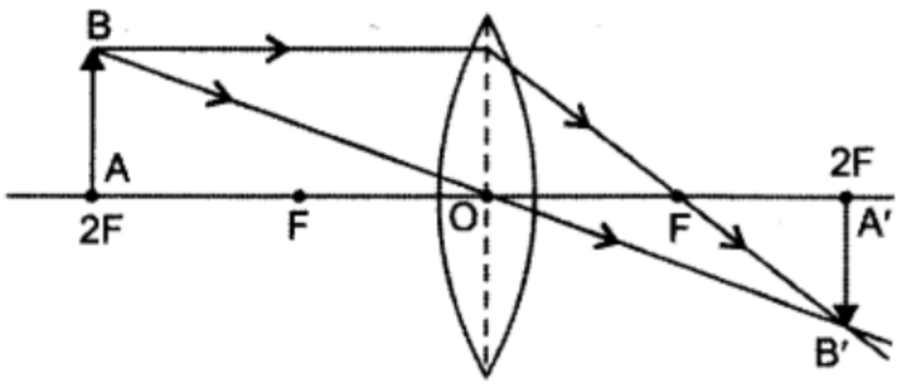
Q2. (1) 5 cm

Q3. (3) Virtual and erect

Q4. (4) Infinity

Q5. (3) Same size as object

Passage - 3 **5 Marks**



Answer Key 10.6

Marks - 25

An object 2 cm high is placed at a distance of 64 cm from a white screen. On placing a convex lens at a distance of 32 cm from the object it is found that a distinct image of the object is formed on the screen.

Q1. (3) 16 cm

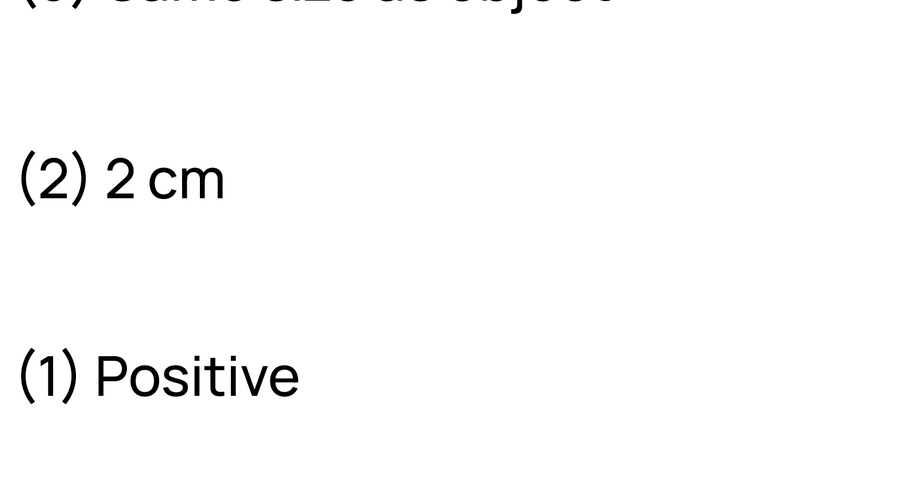
Q2. (3) Same size as object

Q3. (2) 2 cm

Q4. (1) Positive

Q5. (2) A convex lens

Passage - 4 **5 Marks**



A girl was playing with a thin beam of light from her laser torch by directing it from different directions on a convex lens held vertically. She was surprised to see that in a particular direction the beam of light continues to move along the same direction after passing through the lens.

Q1. (1) The girl must have directed the ray of light along the direction of the optical centre of the lens.

Answer Key 10.6

Marks - 25

Q2. (3) 60 cm

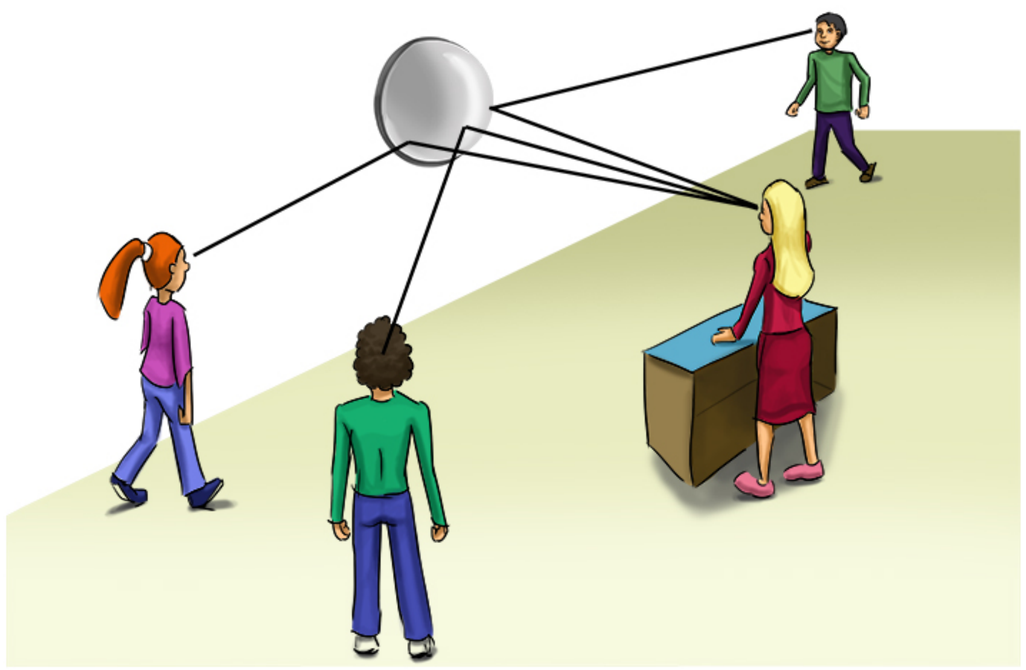
Q3. (2) Real and inverted

Q4. (2) At twice the focal length.

Q5. (2) Positive

Passage - 5

5 Marks



Convex mirrors are also used for security purposes in various places. They are places near ATM's so that bank customers can check if someone is behind them.

Q1. (2) Virtual

Q2. (1) Less than the size of object

Q3. (1) Negative

Q4. (3) Virtual and erect

Answer Key 10.6

Marks - 25

Q5. (1) TRUE
