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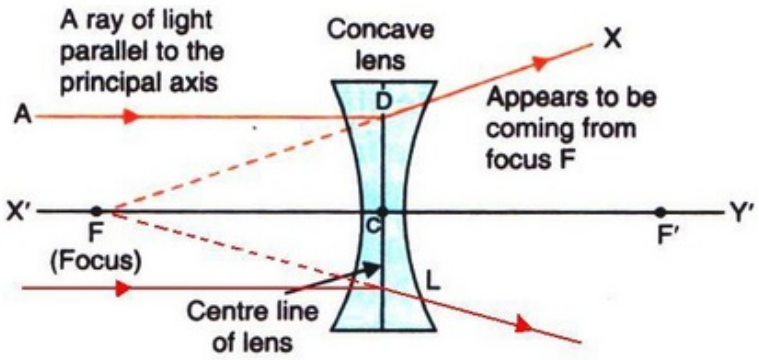
Q1.
Concave lens.
Q2.



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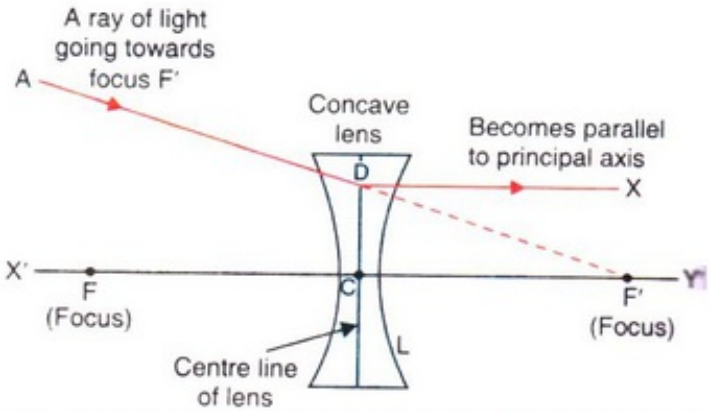
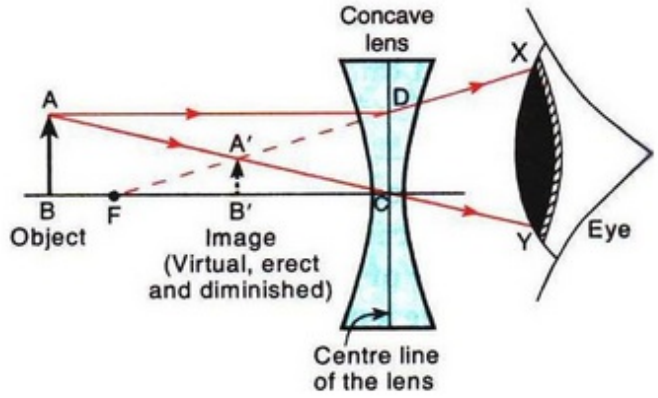
Q3.
(a) Concave lenses.
(b) Convex lenses.
Q4.

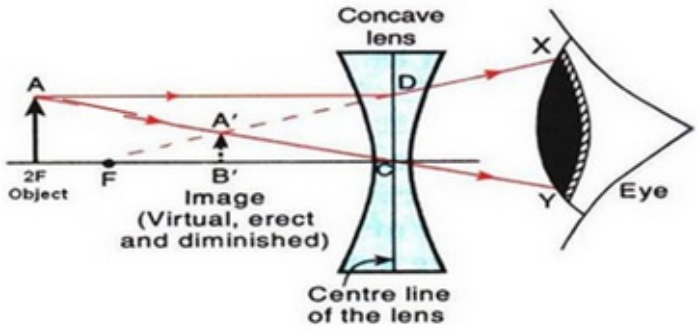


Ray of light going towards the focus of a concave lens.

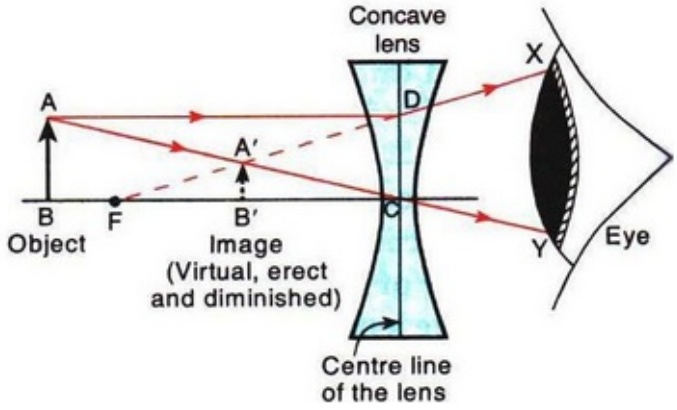
Q5.
(a) Real and virtual.
(b) Virtual.
Q6.



Q7.
(a) converges; diverges
(b) converging; virtual
Q8.
Concave lens.
Q9.



Q10.



Q11.
(a) When the object is placed anywhere between optical centre and infinity, the image is formed between optical centre and focus. It is diminished, virtual and erect.
(b) When the object is placed at infinity, the image is formed at focus. It is highly diminished, virtual and erect.
Q12.
(a) A convex lens is a converging lens because it converges a parallel beam of light rays passing through it at its focus.

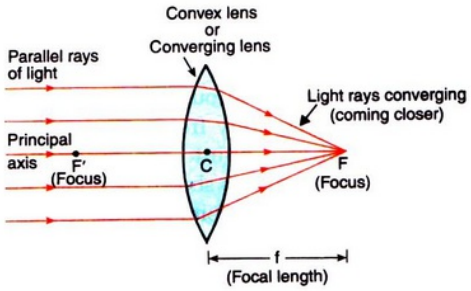


Figure — A convex lens converges (brings closer) a parallel beam of light rays to a point F on its other side (right side).

(b) A concave lens is a diverging lens because it diverges the parallel beam of rays passing through it.

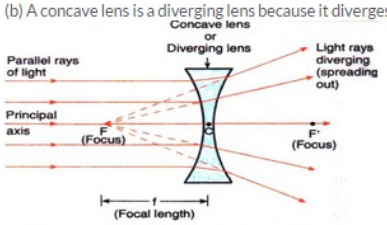
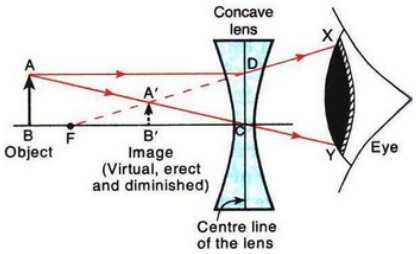


Figure — A concave lens diverges (spreads out) a parallel beam of light rays.

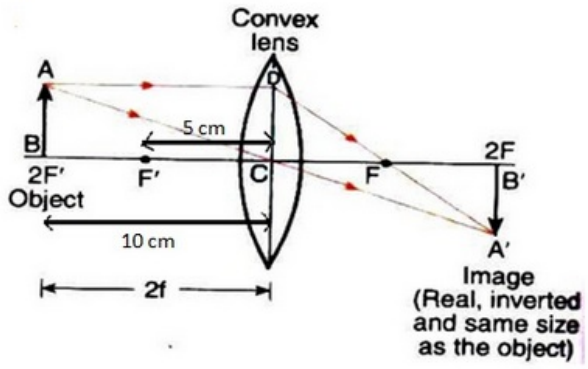
Q13.
(a) Smaller.
(b) Bigger.
Image is virtual in both the cases.



As shown by the diagram, the image of an object viewed through a concave lens appears smaller and closer than the object.

Q14.
(a)

(a)
(i)



(ii)

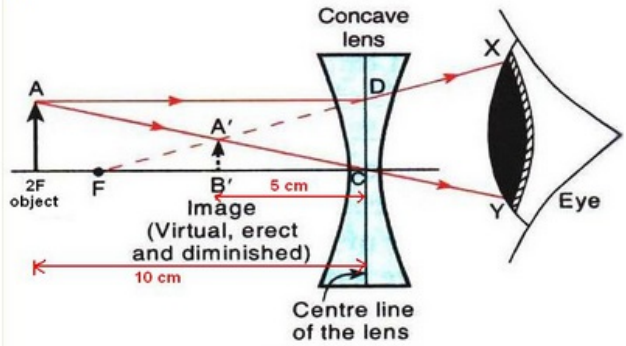


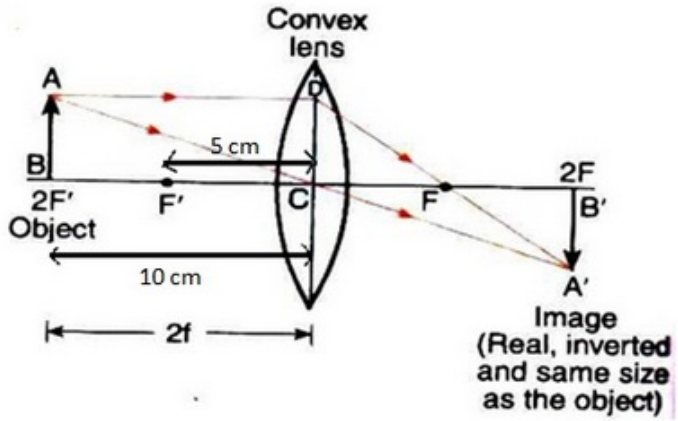
Fig - Formation of image when image is at 2F

(b)

1. Use of convex mirror: As rear-view mirror in vehicles.
2. Use of concave mirror: As shaving mirrors.
3. Use of convex lens: For making simple camera.
4. Use of concave lens: As eye-lens in Galilean telescope.

Q15.

(a)
(i)



(ii)

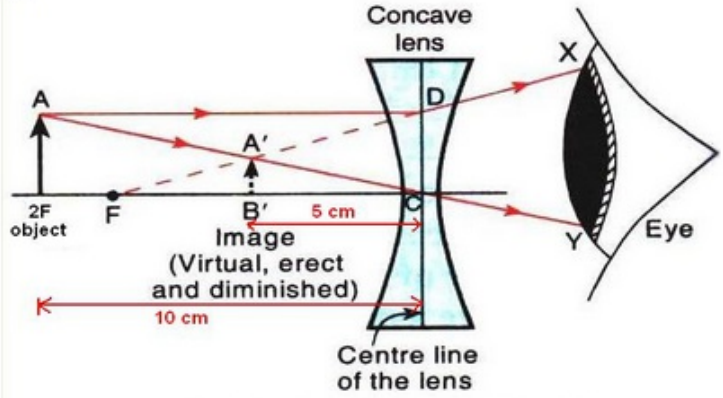


Fig - Formation of image when image is at 2F

(b) Use of convex mirror: As rear-view mirror in vehicles
Use of concave mirror: As shaving mirrors
Use of convex lens: For making simple camera
Use of concave lens: As eye-lens in Galilean telescope

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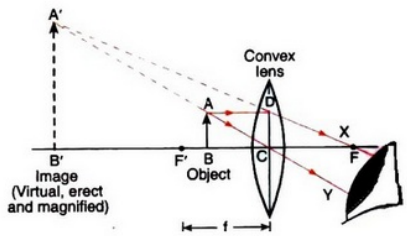
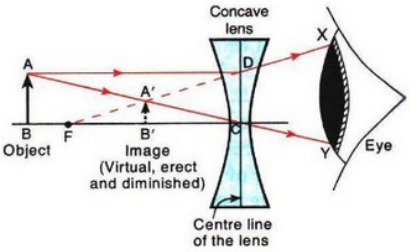
(a)

(i) Formation of virtual image using a converging lens:



(ii) Formation of virtual image using a diverging lens:



(b) The virtual image formed by a converging lens is magnified whereas that formed by a diverging lens is diminished.

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Q23.
(a) The object is placed at focus, so f=10 cm.
(b) the object is placed at a distance twice the focallength, so f=5

cm.
(c) Convex lens (since image is real).
(d) Convex lens (since image is real).
Q23.
(i) Concave lens because of negative magnification.
(ii) Convex lens because of positive magnification.
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(a) Convex lens.
(b) Convex lens.
(c) Convex lens.
(d) Concave lens.

********** END **********