Q1.
(a) Convex mirror
(b) Concave mirror
Q2.
Convex mirror
Q3.
Radius of curvature (R) = 32cm
Focal length (f) = ?
We know that
f = R/2
=32/2
f = 16cm
Q4.
Focal length (f) = 25 cm
Radius of curvature (R) = ?
We know that
f = R/2
25 = R/2
R = 25 x 2
R = 50 cm.

Q5.
(a) principal focus.
(b) principle focus.
(c) converges; diverges.
(d) principle focus.
Q6.
A spherical mirror is that mirror whose reflecting surface is the part of a hollow sphere of glass. The spherical mirrors are of two types: concave mirrors and convex mirrors.
Difference between concave mirror and convex mirror:
A concave mirror is that spherical mirror in which the reflection of light takes place at concave surface (or bent-in surface), whereas a convex mirror is that spherical miror in which the reflection of light takes place at the convex surface (or bulging out surface).
Concave mirror converges the parallel rays of light that fall on it, whereas convex mirror diverges the parallel rays of light that fall on it.
Q7.
Two types of spherical mirrors are:
(i) Concave mirror
(ii) Convex mirror
Type of mirror represented by the:
(a) back side of a shining steel spoon - convex mirror
(b) front side of a shining steel spoon - concave mirror
Q8.
For a spherical mirror the principal focus (F) lies exactly mid-way between the pole (P) and centre of curvature (C). So, the focal length (f) of a spherical mirror is equal to half of its radius of curvature (R).
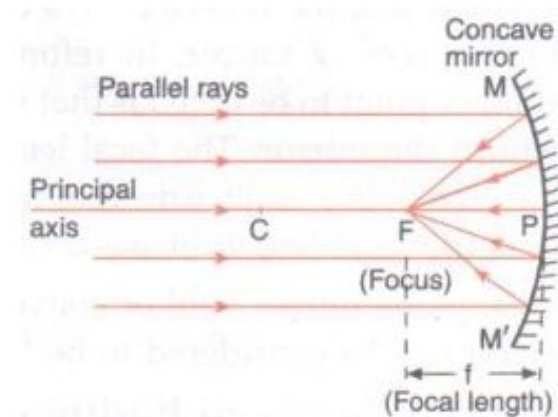f=R/2
R= 25cm (Given)

f=?
We know that
f=R/2
=25/2
f =12.5cm
Q9.

Concave mirror M

Parallel rays

Principal axis   C   F
(Foçus)
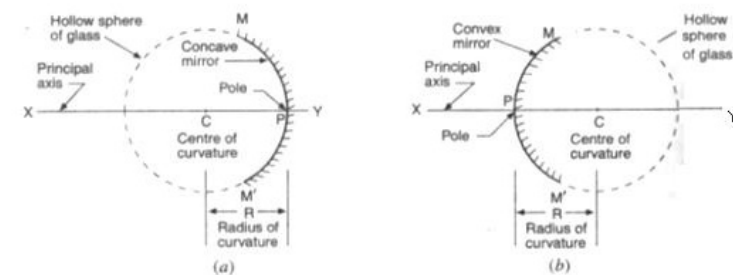
M'

$\leftarrow$ f $\rightarrow$
(Focal length)

All the light rays which are parallel to the principal axis of a concave mirror, converge at the the principal focus (F) after reflection from the mirror. Since a concave mirror converges a parallel beam of light rays, it is also called a converging mirror.
Q10.

Reflected rays   Convex mirror M

Parallel rays

P   F
(Focus)   C

M'

$\leftarrow$ f $\rightarrow$
(Focal length)
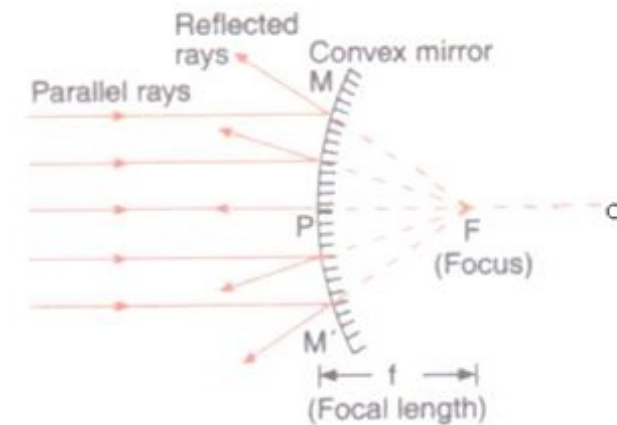
All the light rays which are parallel to the principal axis of a convex mirror, appear to diverge from the principal focus (F) after reflection from the mirror. Since a convex mirror diverges a parallel beam of light rays, it is also called a diverging mirror.
Q11.

Hollow sphere of glass   M   Concave mirror

Principal axis   Pole

X   C   P   Y
Centre of curvature

M'
$\leftarrow$ R $\rightarrow$
Radius of curvature
(a)

Convex mirror   M   Hollow sphere of glass

Principal axis

X   Pole   P   C   Y
Centre of curvature

M'
$\leftarrow$ R $\rightarrow$
Radius of curvature
(b)

(a) Centre of curvature: Centre of curvature of a spherical mirror is the centre of the hollow sphere of glass of which the mirror is a part.
(b) Radius of curvature: Radius of curvature of a spherical mirror is the radius of the hollow sphere of glass of which the mirror is a

part.
(c) Pole: The centre of a spherical mirror is called its pole.
(d) Principal axis: The straight line passing through the centre of curvature and pole of a spherical mirror is called its principal axis.
(e) Aperture: The portion of a mirror from which the reflection of light actually takes place is called the aperture of the mirror.
Q12.
(a) (i) Principal focus of a concave mirror: The principal focus of a concave mirror is a point on its principal axis to which all the light rays which are parallel and close to the axis, converge after reflection from the concave mirror.
(ii) Focal length of a concave mirror: The focal length of a concave mirror is the distance between its pole and the principal focus.

(b)
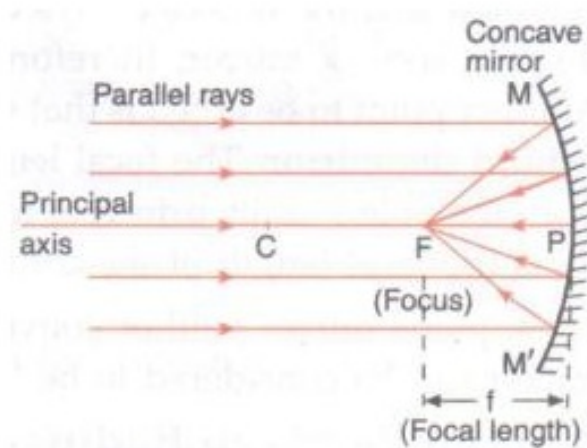
Q13.
(a) (i) Principal focus of a convex mirror: The principal focus of a convex mirror is a point on its principal axis from which a beam of light rays, initially parallel to the axis, appears to diverge after being reflected from the convex mirror.
(ii) Focal length of a concave mirror: The focal length of a convex mirror is the distance from the pole (P) to its principal focus (F).

(b)
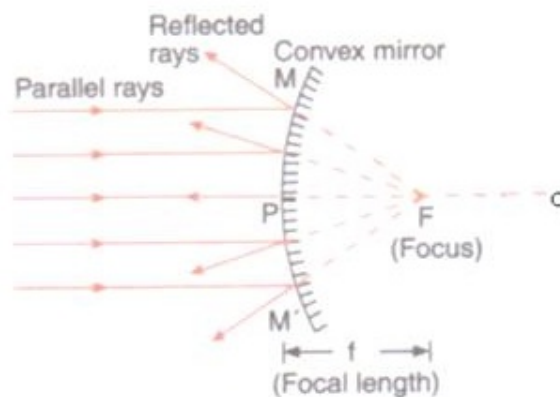
Q19.
Concave metal dish: It will collect the parallel beam of satellite signals at its focus where receiving aerial is fixed.
Q20.
(a) Concave mirror
(b) A lot of sun's heat rays are concentrated at the point of sun's image which burn the hole in carbon paper.

(c) At the focus.
(d) Focal length.
(e) A black carbon paper absorbs more heat rays and hence burns a hole more easily (than a white paper).

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