

VIVEK TUTORIALS

Revision Test [MODEL ANSWER]

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Std: IX (E.M) Subject: Science & Technology I Date : 29/Jan/2020

Time: 1Hrs Max Marks: 20

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Q.1(A) Choose the proper alternative and fill in the blanks:

- (1) Ans. a. virtual
- (2) Ans. b. virtual and erect
- (3) Ans. b. R = 2f
- (4) Ans. b. concave
- (5) Ans. c. flat
- (B) Attempt the following:
- (1) Name the following:

(2) State 'True' or 'False', if 'False' correct it:

- (i) Ans. True
- (ii) Ans. False.
 - A convex mirror is also called a dispersing mirror.

Q.2(A) Give reasons:(Any ONE)

(1) Ans. i. Concave mirror is a focusing mirror. The parallel rays of light get focused after reflection in concave mirror.

ii. When this mirror is arranged such that it forms a point image of the sun on a paper, the mirror collects all the sunrays onto that point on paper,

iii. The convergence of heat from the sun at a single point on the paper burns the paper.

(2) Ans. i. In convex mirrors, we get erect and diminished image of the object.

ii. Therefore, driver can get an erect, diminished and clear view (image) of the vehicles coming from behind when he uses convex mirror on the outside of cars.

iii. Hence, the mirrors fitted on the outside of cars are convex.

(B) Answer the following: (Any ONE)

(1) Ans. i. Light rays travel in all directions from such a source. Several of these rays fall on the mirror, get reflected and reach our eyes. When a person stands in front of a plane mirror, rays from his body fall on the mirror and get reflected.

ii. Image of every point on the body of the person is formed behind the mirror exactly at the same distance from the mirror as the point itself.

iii. This forms an erect but laterally inverted image of the person i.e. his right side appears to left side in the image and vice versa. The size of the image is same as that of the person.

(2) Ans. For the three mirrors created from a single sphere as shown in diagram,

Terms that will be common to all three: Centre of curvature and radius of curvature Terms that will not be common to all three: Pole and principal axis

0.3 **Answer the following:**(Any ONE)

(1) Ans. i. The source of light is placed at the focus of the concave mirror in torches to obtain an inverted, real and very large image as compared to object at infinity.

ii. In projector lamps, the source of light is placed at the centre of curvature of the concave mirror to obtain an inverted and real image of the same size as the object at the centre of curvature.

iii. In floodlights, the source of light is kept just beyond the centre of curvature of the concave mirror to obtain a diminished, inverted and real image (as compared to object) between the centre of

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curvature and focus.

- (2) Ans. i. Periscope Plane mirror
 - ii. Floodlights Concave mirror
 - iii. Shaving mirror Concave mirror
 - iv. Kaleidoscope Plane mirror
 - v. Street lights Convex mirror
 - vi. Head lamps of a car Concave mirror

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Q.4 Answer the following question in brief:(Any ONE)

(1) Ans. (1) At the focus:





(2) At the centre of curvature:



C : Centre of curvature, F : Focus, PF : Focal length (f), PC : Radius of curvature (R) AB : Object, A'B' : Image, PB : Object distance (u), PB' : Image distance (v)

Position of the object	Position of the image	Type of image
At the focus	At infinity	Inverted, real and very large
At the centre of curvature	At the centre of curvature	Inverted, real and same size as the object

(2) Ans. (1) Beyond the centre of curvature:



- C : Centre of curvature, F : Focus, AB : Object, A'B' : Image, PF : Focal length (f), PC : Radius of curvature (R), PB : Object distance (u), PB' : Image distance (v)
- (2) Object at an infinite distance:



C : Centre of curvature, F : Focus, AB : Object at infinity PF : Focal length (f), PC : Radius of curvature (R)

Position of the object	Position of the image	Type of image
Beyond the centre of curvature	Between the centre of curvature and focus	Inverted, real and diminished
At an infinite distance	At focus	Inverted, real and point image as compared to object