# **Light Reflection and Refraction**

# Question 1.

Assertion: Cannot see the distant object clearly.

Reason: The far point of an eye suffering j, from myopia is less than infinity.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

#### ▼ Answer

(b) Both A and R are true but R is not the correct explanation of A.

### Question 2.

When the object is placed between f and 2f of a convex lens, the image formed is

- (a) at f
- (b) at 2f
- (c) beyond 2f
- (d) between O and f

#### ▼ Answer

(c) beyond 2f

# Question 3.

A ray of light is travelling from a rarer medium to a denser medium. While entering the denser medium at the point of incidence, it

- (a) goes straight into the second medium
- (b) bends towards the normal
- (c) bends away from the normal
- (d) does not enter at all

## **▼** Answer

(b) bends towards the normal

# Question 4.

The image formed by a convex lens can be

- (a) virtual and magnified
- (b) virtual and diminished
- (c) virtual and of same size
- (d) virtual image is not formed

# ▼ Answer

(a) virtual and magnified

## Ouestion 5.

If an incident ray passes through the focus, the reflected ray will

- (a) pass through the pole
- (b) be parallel to the principal axis
- (c) retrace its path
- (d) pass through the centre of curvature





(b) be parallel to the principal axis

# Question 6.

A full length image of a distant tall building can definitely be seen by using

- (a) a concave mirror
- (b) a convex mirror
- (c) a plane mirror
- (d) both concave as well as plane mirror

#### ▼ Answer

(b) a convex mirror

## Question 7.

The refractive index of water is 1.33. The speed of light in water will be

- (a)  $1.33 \times 108 \text{ m/s}$
- (b)  $3 \times 108 \text{ m/s}$
- (c)  $2.26 \times 108 \text{ m/s}$
- (d)  $2.66 \times 108 \text{ m/s}$

#### **▼** Answer

(c)  $2.26 \times 108 \text{ m/s}$ 

## Question 8.

Where should an object be placed in front of convex lens to get a real image of the size of the object?

- (a) At the principal focus of the lens.
- (b) At twice the focal length
- (c) At infinity
- (d) Between the optical centre of the lens and its principal focus.

#### ▼ Answer

(b) At twice the focal length

## Question 9.

An object at a distance of 30 cm from a concave mirror gets its image at the same point. The focal length of the mirror is

- (a) 30 cm
- (b) 30 cm
- (c) 15 cm
- (d) + 15 cm

### ▼ Answer

(c) - 15 cm

# Ouestion 10.

A concave mirror of radius 30 cm is placed in water. It's focal length in air and water differ by

- (a) 15
- (b) 20
- (c) 30
- (d) 0





(d) 0

## Question 11.

As light travels from a rarer to a denser medium it will have

- (a) increased velocity
- (b) decreased velocity
- (c) decreased wavelength
- (d) both (b) and (c)

#### ▼ Answer

(d) both (b) and (c)

### Question 12.

The nature of image formed by a convex mirror when the object distance from the mirror is less than the distance between pole and focal point (F) of the mirror would be:

- (a) real, inverted and diminished in size
- (b) real, inverted and enlarged in size
- (c) virtual, upright and diminished in size
- (d) virtual, upright and enlarged in size

### ▼ Answer

(c) virtual, upright and diminished in size

### Ouestion 13.

You are given three media A, B and C of refractive index 1.33, 1.65 and 1.46. The medium in which the light will travel fastest is

- (a) A
- (b) B
- (c) C
- (d) equal in all three media

## ▼ Answer

(b) B

## Question 14.

When object moves closer to convex lens, the image formed by it shift

- (a) away from the lens
- (b) towards the lens
- (c) first towards and then away from the lens
- (d) first away and then towards the lens

### ▼ Answer

(a) away from the lens

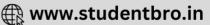
## Question 15.

A magnified real image is formed by a convex lens when the object is at

- (a) F
- (b) between F and 2F
- (c) 2F
- (d) only (a) and (b) both







# (d) only (a) and (b) both

# Question 16.

If a man's face is 25 cm in front of concave shaving mirror producing erect image 1.5 times the size of face, focal length of the mirror would be

- (a) 75 cm
- (b) 25 cm
- (c) 15 cm
- (d) 60 cm

# **▼** Answer

(a) 75 cm

#### Question 17.

Where should an object be placed in front of a convex lens to get real image of the size of the object?

- (a) At focus
- (b) At 2F
- (c) At Infinity
- (d) Between optical centre and focus.

#### ▼ Answer

(b) At 2F

## Question 18.

A divergent lens will produce

- (a) always real image
- (b) always virtual image
- (c) both real and virtual image
- (d) none of these

## ▼ Answer

(b) always virtual image

## Question 19.

In torches, search lights and head lights of vehicles the bulb is placed

- (a) Between pole and focus
- (b) Very near to the focus
- (c) Between focus and centre of curvature
- (d) At centre of curvature

### ▼ Answer

(b) Very near to the focus

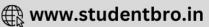
# Question 20.

For a real object, which of the following can produce a real image?

- (a) Plane mirror
- (b) Concave mirror
- (c) Concave lens
- (d) Convex mirror







# (b) Concave mirror

## Question 21.

An object is placed at a distance of 0.25 m in front of a plane mirror. The distance between the object and image will be

- (a) 0.25 m
- (b) 1.0 m
- (c) 0.5 m
- (d) 0.125 m

#### ▼ Answer

(c) 0.5 m

#### Question 22.

The distance between the object and image will be

- (a) 0.25 m
- (b) 1.0 m
- (c) 0.5 m
- (d) 0.125 m

#### ▼ Answer

(c) 0.5 m

### Question 23.

Assertion: Pupil is black in colour.

Reason: Pupil is black in colour as no light is reflected in it.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

#### ▼ Answer

(a) Both A and R are true and R is the correct explanation of A.

## Question 24.

Assertion: The rainbow is a man made spectrum of sunlight in the sky.

Reason: The rainbow is formed in the sky when the sun is shining and it is raining at the same time.(a) Both A and R are true and R is the correct explanation of A.

(h) Deth A and D are three last D is not the contest explanation of A

- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false.

### ▼ Answer

(a) Both A and R are true and R is the correct explanation of A.

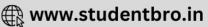
## Question 25.

Which mirror can produce a virtual, erect and magnified image of an object?

(a) Concave mirror







- (b) Convex mirror
- (c) Plane mirror
- (d) Both concave and convex mirrors

(a) Concave mirror

### Question 26.

Image formed by reflection from a plane mirror is

- (a) real and inverted
- (b) virtual and erect
- (c) real and erect
- (d) virtual and inverted

#### Answer

(b) virtual and erect

### Question 27.

Focal length of a concave mirror is

- (a) negative
- (b) positive
- (c) depends on the position of object
- (d) depends on the position of image

### **▼** Answer

(a) negative

#### Ouestion 28.

When light falls on a smooth polished surface, most of it

- (a) is reflected in the same direction
- (b) is reflected in different directions
- (c) is scattered
- (d) is refracted into the second medium

#### ▼ Answer

(a) is reflected in the same direction

### Question 29.

Which of the following statements is/are true?

- (a) A convex lens has 4 dioptre power having a focal length 0.25 m
- (b) A convex lens has 4 dioptre power having a focal length 0.25 m
- (c) A concave lens has 4 dioptre power having a focal length 0.25 m
- (d) A concave lens has 4 dioptre having a focal 0.25 m

### ▼ Answer

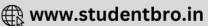
(c) A concave lens has 4 dioptre power having a focal length 0.25 m

### Question 30.

The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?

- (a) Between the principal focus and the centre of curvature.
- (b) At the centre of curvature





- (c) Beyond the centre of curvature
- (d) Between the pole of the mirror and its principal focus.

(d) Between the pole of the mirror and its principal focus.

## Question 31.

A spherical mirror and thin spherical lens have each of focal length of -15 cm. the mirror and lens are likely to be

- (a) Both concave
- (b) Both convex
- (c) The mirror is concave and the lens is convex
- (d) The mirror is convex and lens is concave.

#### Answer

(a) Both concave

### Ouestion 32.

The angle of incidence for a ray of light having zero reflection angle is

- (a) 0
- (b) 30°
- (c)  $45^{\circ}$
- (d) 90°

### ▼ Answer

(a) 0

#### Question 33.

The image formed by concave mirror is real, inverted and of the same size as that of the object. The position of object should be

- (a) at the focus
- (b) at the centre of curvature
- (c) between focus and centre of curvature
- (d) beyond centre of curvature

## ▼ Answer

(c) between focus and centre of curvature

## Question 34.

A concave mirror of focal length 20 cm forms an image having twice the size of object. For the virtual position of object, the position of object will be at

- (a) 25 cm
- (b) 40 cm
- (c) 10 cm
- (d) At infinity

#### Answer

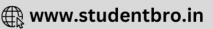
(c) 10 cm

### Question 35.

The refractive index of transparent medium is greater than one because

(a) Speed of light in vacuum < speed of light in tansparent medium (b) Speed of light in vacuum





- > speed of light in tansparent medium
- (c) Speed flight in vacuum = speed of light in tansparent medium
- (d) Frequency of light wave changes when it moves from rarer to denser medium

(b) Speed of light in vacuum > speed of light in tansparent medium

### Question 36.

Large number of thin stripes of black paint are made on the surface of a convex lens of focal length 20 cm to catch the image of a white horse. The image will be

- (a) a zebra of black stripes
- (b) a horse of black stripes
- (c) a horse of less brightness
- (d) a zebra of less brightness

#### **▼** Answer

(c) a horse of less brightness

# Question 37.

Which one of the following materials cannot be used to make a lens?

- (a) Water
- (b) Glass
- (c) Plastic
- (d) Clay

### ▼ Answer

(d) Clay

### Question 38.

When a ray of light goes from one medium to another, there is

- (a) Always a change in its speed as well as direction
- (b) No change in speed and direction
- (c) A change in speed but no change in direction
- (d) A change in direction but constant speed.

## ▼ Answer

(a) Always a change in its speed as well as direction

## Question 39.

The angle of incidence i and refraction r are equal in a transparent slab when the value of i is

- $(a) 0^{\circ}$
- (b) 45°
- (c) 90°
- (d) depend on the material of the slab

#### Answer

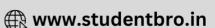
(a) 0°

### Question 40.

Light from the Sun falling on a convex lens will converge at a point called

- (a) centre of curvature
- (b) focus





- (c) radius of curvature
- (d) optical centre

(b) focus

### Question 41.

When object moves closer to a concave lens the image by it shift

- (a) away from the lens on the same side of object
- (b) toward the lens
- (c) away from the lens on the other side of lens
- (d) first towards and then away from the lens

#### ▼ Answer

(b) toward the lens

### Question 42.

The nature of the image formed by concave mirror when the object is placed between the focus

- (F) and centre of curvature (C) of the mirror observed by us is
- (a) real, inverted and diminished
- (b) virtual, erect and smaller in size
- (c) real, inverted and enlarged
- (d) virtual, upright and enlarged

### ▼ Answer

(c) real, inverted and enlarged

#### Question 43.

The power of a lens is – 4.0 D. what is the nature of the lens?

- (a) Plane
- (b) Concave
- (c) Convex
- (d) Plano convex

#### ▼ Answer

(b) Concave

#### Question 44.

An object at a distance of + 15 cm is slowly moved towards the pole of a convex mirror. The image will get

- (a) shortened and real
- (b) enlarged and real
- (c) enlarge and virtual
- (d) diminished and virtual

## ▼ Answer

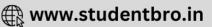
(d) diminished and virtual

### Question 45.

Which of the following mirror is used by a dentist to examine a small cavity?

- (a) Convex mirror
- (b) Plane mirror





- (c) Concave mirror
- (d) Combination of convex and concave mirror
- **▼** Answer
- (c) Concave mirror

