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

Question 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

▼ Answer

(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 × 108 m/s
(b) 3 × 108 m/s
(c) 2.26 × 108 m/s
(d) 2.66 × 108 m/s

▼ Answer

(c) 2.26 × 108 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

Question 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

▼ Answer

(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

Question 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

▼ Answer

(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

▼ Answer

(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.
(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

▼ Answer

(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

Question 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

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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.

▼ Answer

(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

Question 32.
The angle of incidence for a ray of light having zero reflection angle is
(a) 0
(b) 30°
(c) 45°
(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

▼ Answer

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

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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°
(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

▼ Answer

(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
