LIGHT

Class 08 - Science

Time Allowed: 50 minutes **Maximum Marks: 75**

1. We can see a non-luminous object when light **[1]**

   a) Completely passes through the object. b) Emitted by the object falls on the eye.

   c) Gets completely absorbed by the object. d) Is reflected from the object towards our eye.

2. Objects are visible, when reflected light **[1]**

   a) Enters to our eyes b) Comes out from the eyes

   c) Bends towards the normal d) Bounce back from surface

3. When an object is placed at a distance of 15 cm from a plane mirror. The image formed is at distance of **[1]**

   a) 15 cm in front of the mirror b) 15 cm behind the mirror

   c) 50 cm in front the mirror d) 50 cm behind the mirror

4. The objects which partially allow the light to pass through it are called **[1]**

   a) translucent b) opaque

   c) luminous d) transparent

5. A red rose and a white rose are placed in front of a source of light. The colour of the shadow will be **[1]**

   a) Different for both rose b) Same for both rose

   c) Black for red rose and white for white rose d) Red for red rose and white for white rose

6. We are able to see through a _____ medium as light is transmitted through it. **[1]**

   a) Translucent b) Transparent

   c) Rough d) Opaque

7. The elementary particles that defines light is the **[1]**

   a) Neutron b) Proton

   c) Photon d) Electron

8. Which mirror always forms virtual, erect, and image of the same size. The image is laterally inverted too. **[1]**

   a) Convex mirror b) Plane mirror

   c) Biconcave mirror d) Concave mirror

9. Which one shows lateral inversion? **[1]**

   a) Convex mirror b) All Plane, concave and convex mirror

   c) Plane mirror d) Concave mirror

10. The image formed on cinema screen is an example of **[1]**

a) Real diminished image
b) Real image
c) Virtual image
d) Erect image

11. The perpendicular to the reflecting surface is called _____. **[1]**

a) Refracted rays
b) Normal
c) Reflected rays
d) Incident rays

12. Number of image formed of an object placed between the two inclined plane mirror at an angle of 90^o, is **[1]**

a) 4
b) 5
c) 2
d) 3

13. Angle of incidence is equal to the angle of reflection. **[1]**

a) Never
b) Sometimes
c) Under special conditions
d) Always

14. In regular reflection, the angle of incidence is always equal to: **[1]**

a) Angle of deviation
b) Angle of emergence
c) Angle of reflection
d) Angle of refraction

15. We can see an object when it **[1]**

a) Refract or absorb the rays of light
b) Reflect or emit rays of light
c) Has shining surface
d) Has bright colour

16. Choose the correct statement for making the images by plain mirror: **[1]**

i. Image Distance = Object Distance
ii. Image Size = Object Size
iii. Laterally Converted = Erected Image
iv. Real Image

a) (i), (ii) and (iii)
b) (ii), (iii) and (iv)
c) (i), (iii) and (iv)
d) (i), (ii) and (iv)

17. Which metal is the best reflector of light? **[1]**

a) Zinc
b) Copper
c) Magnesium
d) Silver

18. The angle between mirror and incident ray is 50° than the angle of reflection will be: **[1]**

a) 45^o
b) 90^o
c) 50^o
d) 40^o

19. Bouncing back of ray of light from shining surface on which it was incident is known as **[1]**

a) refraction
b) reflection
c) bending
d) dispersion

20. Normal is **[1]**

a) Convergent to surface
b) Parallel to surface

c) Perpendicular to surface

d) Oblique to surface

21. A ray of light can reflected _____ times by two plane mirrors placed parallel and facing each other. **[1]**

a) 8

b) 4

c) 2

d) infinite

22. The angle of incidence is equal to the angle of incidence: **[1]**

a) Always

b) Under special conditions

c) Never

d) Sometimes

23. **Match the following:** **[2]**

Column A	**Column B**
i. kaleidoscope	a. object placed at focus
ii. reflection by mirrors	b. plane mirror
iii. reflection by wood	c. regular reflection
iv. image formed at infinity	d. irregular reflection

24. **Match the following:** **[2]**

Column A	**Column B**
i. The ray of light falling on a reflecting surface	a. angle of incidence
ii. The ray of light coming back from a reflecting surface	b. normal
iii. The perpendicular on reflecting surface at the point of incidence	c. reflected ray
iv. The angle between incident ray and normal	d. incident ray

25. **Assertion (A):** Light falling along normal to plane mirror will retrace its path. **[1]**

Reason (R): Angle of incidence is equal to angle of reflection.

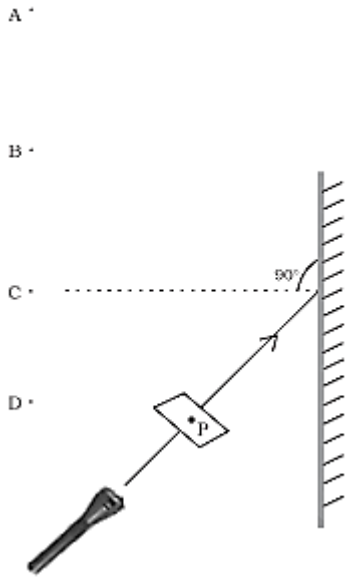
a) Both A and R are true and R is the correct explanation of A.

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.

26. A small hole P is made in a piece of cardboard. The hole is illuminated by a torch as shown in fig. The pencil of light coming out of the hole falls on a mirror. **[1]**



At which point should the eye be placed so that the hole can be seen?

a) D
b) C
c) B
d) A

27. Choose the correct option: Angle of incidence is equal to the angle of reflection. **[1]**

a) Under special conditions
b) Sometimes
c) Never
d) Always

28. Images are formed by _____ **[1]**

a) diffused reflection
b) irregular reflection
c) reflection
d) regular reflection

29. Diffused reflection of light **[1]**

a) does not obey the laws of reflection
b) Occurs from plane surface like mirror
c) obey the laws of reflection
d) May obey or may not obey laws of reflection

30. When light travels from hot air to cold air, then **[1]**

a) bends away from the normal
b) bends towards the normal
c) bends away from the normal and scatter
d) bends towards the normal and scatter

31. Due to which property of light sharp shadows of opaque objects are obtained? **[1]**

a) Light travels in wave line
b) Light travels in vacuum
c) Light travels in straight line
d) Light travels in zig-zag

32. Light consists of electromagnetic waves that **[1]**

a) Can propagate in air only
b) Can propagate in rarer medium only
c) Do not require material medium for propagation
d) Require material medium for propagation

33. When two mirrors are placed parallel to each other **[1]**

a) Only image is formed
b) No image is formed

c) Large number of image are formed
d) Only two image is formed

34. When you stands in front of a small mirror. The image formed will appear to be of **[1]**

a) Larger and erect
b) Same size and erect
c) Smaller and erect
d) Larger and inverted

35. The path of the light is visible in **[1]**

a) In gaseous medium only
b) Presence of dispersing medium
c) In any medium
d) In absence of medium

36. Due to which the air bubble seems to be sparkling in the water? **[1]**

a) Due to total reflection
b) Due to refraction
c) Due to reflection
d) Due to diffraction

37. Which property of light enables us to see our face in mirror? **[1]**

a) Refraction of light
b) Rectilinear propagation
c) Light is a form of energy
d) Reflection of light

38. **Assertion (A):** Light can be reflected multiple times. **[1]**
Reason (R): The number of two mirrors at some angle gives number of images.

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.

39. Which of the following works on the concept of multiple reflections? **[1]**

a) Sunglasses
b) Telescope
c) Binoculars
d) Kaleidoscope

40. **Match the following:** **[2]**

Column A (Angle)	**Column B (number of images)**
i. 120^o	a. 7
ii. 45^o	b. 5
iii. 180^o	c. 2
iv. 60^o	d. 1

41. **Assertion (A):** Placing number of mirror at some angle to each other gives multiple images. **[1]**
Reason (R): Number of images formed depends upon number of mirrors.

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.

42. **Assertion (A):** Periscope is used in submarines. **[1]**
Reason(R): It follows the application of multiple images.

a) Both A and R are true and R is the correct
b) Both A and R are true but R is not the

explanation of A.

c) A is true but R is false.

correct explanation of A.

d) A is false but R is true.

43. Rainbow is formed due to **[1]**

a) Refraction of light through air

b) Dispersion of light by water droplets

c) dispersion of light in vaccum

d) Reflection of lightning by water droplets

44. When light passes through a prism which colour shows maximum deviation? **[1]**

a) Red colour

b) Violet colour

c) Blue colour

d) Green colour

45. Speed of light **[1]**

a) Increase in denser medium

b) Changes with medium

c) Remain same in all medium

d) Decrease in rarer medium

46. Which of the following has maximum energy? **[1]**

a) Yellow light

b) Blue light

c) Red light

d) Green light

47. The stars are visible because **[1]**

a) they are emitting their own light

b) they are reflecting the light of sun

c) they are absorbing the light of sun

d) they are away from earth

48. White light is composed of: **[1]**

a) Three colours

b) Five colours

c) Seven colours

d) Eight colours

49. Sky appear blue coloured during day because **[1]**

a) Sky is blue in colour

b) Blue coloured light can be scattered by small particles

c) Sun light is made up of blue light only

d) Blue colour of light is visible in sunlight only

50. **Match the following:** **[2]**

Column A	**Column B**
i. Phenomenon is responsible for the creation of rainbows	a. Pupil
ii. Part of eyes there is no sense of vision	b. Dispersion of light
iii. Changes the curvature of eye lens to focus objects lying at various distances	c. Blind spot
iv. Small opening in the iris	d. Ciliary muscles

51. **Assertion (A):** Sunlight consists of seven colors. **[1]**

Reason (R): It follows the phenomenon of dispersion of light.

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.

52. The human eye has a converging lens system that produces an image just like a camera. If the eye views a distant object, which type of image is produced? **[1]**

a) Real, erect, same, size
b) Real, inverted, diminished
c) Virtual, inverted, magnified
d) Virtual, erect, diminished

53. Part of the eye which controls the light entering is called **[1]**

a) lens
b) iris
c) cornea
d) retina

54. The defects of eyes due to absence of cones in retina is **[1]**

a) Astigmatism
b) Night blindness
c) Colour blindness
d) Poor vision

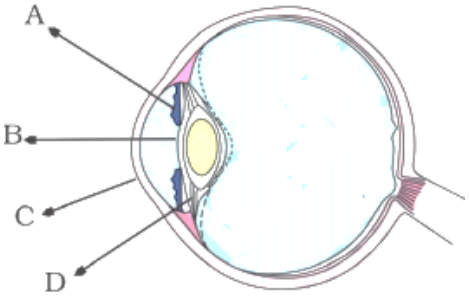
55. In eye donation, which part of donor's eye is transplanted? **[1]**

a) Cornea
b) Retina
c) Lens
d) Complete lense

56. A dark muscular structure of human eye which gives it its distinctive colour is **[1]**

a) iris
b) cornea
c) eye lens
d) pupil

57. In the figure of the human eye (Fig.), the cornea is represented by the letter **[1]**



a) D
b) C
c) A
d) B

58. Human eye can see maximum _____ separate pictures in a second. **[1]**

a) 16
b) 24
c) 12
d) 6

59. Which of the following statements is correct regarding rods and cones in the human eye? **[1]**

a) Rods are sensitive to bright light
b) Cones are sensitive to dim light
c) Cones are sensitive to bright light
d) Rods can sense colour

60. **State whether the given statement is True or False:** **[4]**

(a) The distance between principal focus and centre of curvature is called focal length. **[1]**
(b) A glass allows almost all the light to pass through it. **[1]**
(c) Gold is a translucent metal. **[1]**

(d) The angle of incidence is twice the angle of reflection. **[1]**

61. **Fill in the blanks:** **[5]**

(a) Uneven surfaces show _____ reflection. **[1]**

(b) Reflection from a rough surface is called _____ reflection. **[1]**

(c) Reflection from a smooth and shiny surface is called _____ reflection. **[1]**

(d) If you touch your _____ ear with right hand in front of a plane mirror it will be seen in the mirror that your right ear is touched with _____. **[1]**

(e) The impression of an image is formed on _____. **[1]**

62. **Fill in the blanks:** **[3]**

(a) To keep our eyes fit, our diet should include vitamin _____ rich eatables. **[1]**

(b) Cones are sensitive to _____ light. **[1]**

(c) The size of the pupil becomes _____ when you see in dim light. **[1]**

Solution

LIGHT

Class 08 - Science

1.

(d) Is reflected from the object towards our eye.

Explanation:

We can see a non-luminous object (the object that does not produce its own light) when light reflected by the object enters our eyes.

2. **(a)** Enters to our eyes

Explanation:

Objects visible to us only when ray of light enters our eye after reflection forming an image on the retina

3.

(b) 15 cm behind the mirror

Explanation:

Plane mirror form virtual, erect and image of same size behind the mirror. The object distance is equal to image distance. Object placed at a distance of 15 cm form image at distance of 15 cm behind the mirror.

4. **(a)** translucent

Explanation:

translucent

5.

(b) Same for both rose

Explanation:

The colour of the shadow is always black in spite of different object. So, a red rose and white rose always form black colour of shadow.

6.

(b) Transparent

Explanation:

Transparent

7.

(c) Photon

Explanation:

a particle representing a quantum of light or other electromagnetic radiation. A photon carries energy proportional to the radiation frequency but has zero rest mass.

8.

(b) Plane mirror

Explanation:

Plane mirror always forms virtual, erect, and image of the same size. The image is laterally inverted too.

9.

(b) All Plane, concave and convex mirror

Explanation:

"Lateral inversion" means the apparent reversal of the mirror image's left and right when compared with the object. If you stand in front of a plane mirror and raise your right hand, your mirror image shows your left hand. The size of the image is equal to the size of the object. Plane mirror, concave mirror, and convex mirror show a lateral inversion of light.

10.

(b) Real image

Explanation:

The image formed on cinema screen is an example of real image as it is obtained on screen. The inverted image is re-inverted by the projector to appear erect.

11.

(b) Normal

Explanation:

Normal is a line drawn perpendicular to the surface of the mirror from the point where incident ray meets the surface of the mirror.

12.

(d) 3

Explanation:

3

13.

(d) Always

Explanation:

During reflection of light, the angle of reflection is always equal to the angle of incidence according to the law of light.

14.

(c) Angle of reflection

Explanation:

The Law of Reflection states that the angle of the incident light ray is equal to the angle of the reflected light ray.

15.

(b) Reflect or emit rays of light

Explanation:

When we see an object when it reflects or emit rays of light. Reflected light enters the eyes and image is formed on the retina.

16. **(a)** (i), (ii) and (iii)

Explanation:

The images by plane mirror are

Image distance = object distance

Image size = object size

Laterally inverted = Erected image

17.

(d) Silver

Explanation:

Silver

18.

(c) 50^o

Explanation:

The angle of incidence is always equal to the angle of reflection of light. The angle between mirror and incident ray is 50^o than the angle of reflection will be 50^o.

19.

(b) reflection

Explanation:

reflection

20.

(c) Perpendicular to surface

Explanation:

Perpendicular at the point of incident of light to the surface is called normal. Normal is an imaginary line.

21.

(d) infinite

Explanation:

A ray of light can be reflected infinite times by two plane mirrors placed parallel and facing each other because each reflected ray would be the incident ray for the other mirror.

22. **(a)** Always

Explanation:

The angle of incidence is always equal to the angle of reflection of light. If the angle between mirror and incident ray is 90^o than the angle of reflection will be 90^o.

23. i. - b
ii. - c
iii. - d
iv. - a

24. i. - d
ii. - c
iii. - b
iv. - a

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

Explanation:

When light incident along normal to plane mirror it will retrace its path and angle of incidence and Angle of reflection will be equal to zero degree.

26.

(d) A

Explanation:

Eye should be placed at A because the hole can be seen only when the angle of incidence is equal to the angle of reflection.

27.

(d) Always

Explanation:

First law of reflection: When a light ray strikes a plane mirror, the light ray reflects off the mirror. Reflection involves a change in the direction of the light ray. The angle of incidence is the angle between this normal line and the incident ray; the angle of reflection is the angle between this normal line and the reflected ray. According to the law of reflection, the angle of incidence equals the angle of reflection.

28.

(d) regular reflection

Explanation:

Image is formed by regular reflection. When a ray of light approaches a smooth polished surface and the light ray bounces back, it is called the reflection of light.

29. **(a)** does not obey the laws of reflection

Explanation:

Diffused reflection of light does not obeys the law of reflection of light as reflected rays are not parallel to each other.

30.

(b) bends towards the normal

Explanation:

bends towards the normal

31.

(c) Light travels in straight line

Explanation:

Light travels in straight line

32.

(c) Do not require material medium for propagation

Explanation:

Light consists of electromagnetic waves that do not require material medium for its propagation. It can travel in vacuum.

33.

(c) Large number of image are formed

Explanation:

When two mirrors are placed parallel to each other, large numbers of images are formed due to repeated reflection form opposite side placed mirror.

34.

(b) Same size and erect

Explanation:

Plane mirror always forms virtual, erect, image of same size as object. So, when you stand in front of small mirror image will be of same size.

35.

(b) Presence of dispersing medium

Explanation:

The path of the light is visible in presence of dispersing medium like dust particle or prism or other substances in the medium.

36.

(c) Due to reflection

Explanation:

The reason why the air bubble shines in water is because of the reflection. The speed of light inside the air bubble is faster than in the water. The reason why the air bubble appears to be like a mirror is that the light gets reflected around the outside of the bubble.

37.

(d) Reflection of light

Explanation:

Reflection of light enables us to see our face in mirror as mirror forms image behind the mirror which is virtual and erect.

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

Explanation:

At barber's shop we can have back view of our hair which is due to multiple reflections.

39.

(d) Kaleidoscope

Explanation:

A kaleidoscope is an optical instrument with two or more reflecting surfaces tilted to each other in an angle, so that one or more objects on one end of the mirrors are seen as a regular symmetrical pattern when viewed from the other end, due to repeated reflection.

40. i. - c
ii. - a
iii. - d
iv. - b

41.

(c) A is true but R is false.

Explanation:

Number of images formed depends upon the angle between two mirrors.

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

Explanation:

Periscope is used in submarine to see the objects in depth.

43.

(b) Dispersion of light by water droplets

Explanation:

Rainbow is formed due to the dispersion of light by water droplets after the shower in the opposite direction of Sun. A rainbow is a meteorological phenomenon that is caused by reflection, refraction and dispersion of light in water droplets resulting in a spectrum of light appearing in the sky. Rainbows caused by sunlight always appear in the section of sky directly opposite the sun.

44.

(b) Violet colour

Explanation:

Violet colour

45.

(b) Changes with medium

Explanation:

Speed of light changes with medium. Light travels faster in rarer medium and slower in denser medium.

46.

(b) Blue light

Explanation:

Blue light has shorter waves, with wavelengths between about 450 and 495 nanometers. Red light has longer waves, with wavelengths around 620 to 750 nm. Blue light has a higher frequency and carries more energy than red light.

47. **(a)** they are emitting their own light

Explanation:

they are emitting their own light

48.

(c) Seven colours

Explanation:

The cause of dispersion of light is that white light consists of seven different colours, and each colour has a different angle of deviation. Therefore, on passing through the prism different colours deviate through different angles. Hence the seven colours

of white light separate and form a spectrum. Out of seven colours, the red colour deviates the least, and hence the red colour is present at the top of the spectrum. On the other hand, the violet colour deviates most that is why violet colour is present at the lower end of the spectrum.

49.

(b) Blue coloured light can be scattered by small particles

Explanation:

Sky appear blue coloured during day because blue coloured light can be scattered by small particles present in atmosphere due to its shorter wavelength.

50. i. - b
ii. - c
iii. - d
iv. - a

51.

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

Explanation:

Sunlight is called for white light which consists of seven colours.

52.

(b) Real, inverted, diminished

Explanation:

Real, inverted, diminished

53.

(b) iris

Explanation:

Iris is a dark muscular structure behind the cornea, which controls the amount of light entering into the eye.

54.

(c) Colour blindness

Explanation:

Colour blindness is the defect of vision due to absence of cones in retina. Cones are responsible to see the colour of the object. Some people do not contain certain cones which enable them to see colour.

55. **(a)** Cornea

Explanation:

Eye donation involves donating corneas. Sometimes it called a keratoplasty, or a corneal graft, a cornea transplant could give someone back the gift of sight.

56. **(a)** iris

Explanation:

The iris is the area of the eye that contains the pigment which gives the eye its colour,

57.

(b) C

Explanation:

The transparent front part of the eye is cornea labelled as C (this is a thin layer).

58. **(a)** 16

Explanation:

Human eye can see maximum 16 separate pictures in a second. The images formed on retina remain up to 1/16th second. This phenomenon is called persistence of vision.

59.

(c) Cones are sensitive to bright light

Explanation:

Cones are sensitive to bright light and they sense colour. However, rods are sensitive to dim light.

60. State whether the given statement is True or False:

(i) **(b)** False
Explanation:
False

(ii) **(a)** True
Explanation: True

(iii) **(b)** False
Explanation: False

(iv) **(b)** False
Explanation: False

61. Fill in the blanks:

(i) 1. Irregular

(ii) 1. Diffused

(iii) 1. Regular

(iv) 1. Left, Left hand

(v) 1. Retina

62. Fill in the blanks:

(i) A

(ii) Bright

(iii) Large