IITJEE Foundation Practice paper

HUMAN EYE AND COLOURFUL WORLD

class-10th-Science Number of Questions: 72

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1

The human eye forms the image of an object at its:

Cornea Iris Pupil Retina

2

The change in focal length of an eye-lens is caused by the action of the:

Pupil Retina Ciliary muscles Iris

3

The least distance of distinct vision for a young adult with normal vision is about

25 m 2.5 cm 25 cm 2.5 m

4

Refraction of light in the eye occurs at:

The lens only The cornea only Both the cornea and eye lens The pupil

5

To focus the image of a nearby object on the retina of an eye:

The distance between the eye-lens and retina is increased.

The distance between the eye-lens and retina is decreased.

The thickness of the eye-lens is decreased.

The thickness of the eye-lens is increased.

6

The term 'power of accommodation' as applied to the eye, refers to its ability to:

- Control the intensity of the light falling on the retina.
- Erect the inverted image formed on the retina.
- Vary the focal length of the eye lens.
- Vary the distance between the lens and retina.

7

Which of the following controls the amount of light entering into the eye?

- Ciliary muscles
- Lens
- Iris
- Cornea

8

The human eye possesses the power of accommodation. This is the power to:

- Alter the diameter of the pupil as the intensity of light changes.
- Distinguish between lights of different colours.
- Focus on the objects at different distances.
- Decide which of the two objects is closer.

9

How does the eye change in order to focus on near or distant objects?

- The lens moves in or out
- The retina moves in or out
- The lens becomes thicker or thinner
- The pupil gets larger or smaller

10

Which of the following changes occur when you move from a brightly lit room into a poorly lit room?

- The pupil becomes larger
- The lens becomes thicker
- The ciliary muscle relaxes
- The pupil becomes smaller

11

The size of the pupil of the eye is adjusted by the:

- Cornea
- Ciliary muscles
- Optic nerve
- Iris

12

The defect of vision that cannot be corrected by using spectacles is:

Myopia Presbyopia Cataract Hypermetropia

13

The defect of vision in which a person cannot see distant objects that well but can see nearby objects clearly is called _____.

Cataract Hypermetropia Myopia Presbyopia

14

Manu can see distant objects clearly. But she cannot see nearby objects that well. Which of the following defects of vision is she suffering from?

Long-sightedness Short-sightedness Hind-sightedness Mid-sightedness

15

After testing the eyes of a child, the optician had prescribed the following lenses for his spectacles:
Left eye: +2.00 D
right eye: +2.25 D
The child is suffering from the defect of vision called:

Short-sightedness Long-sightedness Cataract Presbyopia

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A person got his eyes tested. The optician's prescription for the spectacles reads:
Left eye: -3.00 D
right eye: -3.50 D
The person having a defect of vision called:

Presbyopia Myopia Astigmatism Hypermetropia

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A student sitting on the last bench in the class cannot read the writing on the blackboard clearly but he can read the book lying on his desk clearly. Which of the following statement is correct about the student?

The near point of his eyes has receded away.
The near point of his eyes has come closer to him.
The far point of his eyes has receded away.
The far point of his eyes has come closer to him.

18

A man driving a car can read a distant road sign clearly but finds difficulty in reading the odometer on the dashboard of the car. Which of the following statement is correct about this man?

- The near point of his eyes has receded away.
- The near point of his eyes has come closer to him.
- The far point of his eyes has receded away.
- The far point of his eyes has come closer to him.

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The defect of vision in which the eye-lens of a person gets progressively cloudy resulting in blurred vision is called:

- Myopia
- Presbyopia
- Colour blindness
- Cataract

20

A person finds difficulty in seeing nearby objects. His vision can be corrected by using spectacles containing:

- Converging lenses
- Diverging lenses
- Prismatic lenses
- Chromatic lenses

21

The animal which does not have eyes that look sideways is:

- Horse
- Cock
- Lion
- Fish

22

With both eyes open, a person's field of view is about:

- 90°
- 150°
- 180°
- 360°

23

The advantage of having two eyes is that:

- We get a deeper field of view
- We get a coloured field of view
- We get a rear field of view
- We get a wider field of view

24

The animals of prey have:

- Two eyes at the front
- Two eyes at the back
- Two eyes on the sides
- One eye at the front and one eye on the side

25

Predators have:

- Both the eyes on the sides
- One eye on the side and one on the side
- One eye on the front and one at the back
- Both the eyes in the front

26

A beam of white light is incident onto a glass prism. The light cannot be:

- Deviated
- Dispersed
- Focused
- Refracted

27

A beam of white light falls on a glass prism. The colour of light which undergoes the least bending on passing through it is:

- Violet
- Red
- Green
- Blue

28

The colour of white light which suffers the maximum bending (or maximum refraction) on passing through a glass prism is:

- Yellow
- Orange
- Red
- Violet

29

Which of the following colors of white light is least deviated by the prism?

- Green
- Violet
- Indigo
- Yellow

30

The colour of white light which is deviated the maximum on passing through a glass prism is:

- Blue
- Indigo
- Red
- Orange

31

The splitting of white light into seven colors on passing through a glass prism is called

- Refraction
- Deflection
- Dispersion
- Scattering

32

The colored light having the maximum speed in a glass prism is:

Blue green violet yellow

33

Which of the following colour of white light has the least wavelength?

Red Orange Violet Blue

34

Out of the following, the color of light having the maximum wavelength is_____.

Violet Indigo Green Orange

35

Stars in the sky appear higher than actual due to the:

Diffraction of light Scattering of light Refraction of light Reflection of light

36

As light from a far off star comes down towards the earth:

It bends away from the normal It bends towards the normal
It does not bend at all It is reflected back

37

We can see the sun before the actual sunrise by about:

5 minutes 2 minutes 2 hours 20 minutes

38

The blue colour of the sky due to:

Refraction of light Dispersion of light Diffraction of light Scattering of light

39

The red colour of the sun at the time of sunrise and sunset is because:

Red colour is least scattered Blue colour is least scattered
Red colour is mot scattered Blue colour is most scattered

40

Which of the following is not caused by the atmosphere refraction of light?

- Twinkling of stars at night.
- Stars appearing higher in the sky than they actually are.
- Sun becoming visible two minutes before actual sunrise.
- Sun appearing red at sunset.

41

The sky appears blue because:

- Blue light is scattered by the air molecules and other particles present in the air.
- Lights of all colors other than blue are scattered by the air molecules and dust particles.
- Sunlight is monochromatic and is made up of only blue colored light.
- The clouds turn blue due to the water droplets present in them.

42

The field of view of a single human eye nearly:

- 45°
- 90°
- 150°
- 180°

43

When a person sees an object at a long distance, the focal length of his/her eye lens _____ for that moment.

- Increases
- Decreases
- Remains the same
- Decreases drastically

44

Which of the following is an application of atmospheric refraction?

- Apparent position of the stars
- Twinkling of stars
- Early sunrise and delayed sunset
- All of the above

45

In calculating the refractive index of a prism we use the formula,

$$\mu = \frac{sin\left(\frac{A}{2}\right)}{sin\left(\frac{A+D}{2}\right)}$$

Here, A stands for:

- Angle of incidence
- Angle of refraction
- Angle of deviation
- Angle of the prism

46

Statement A: Monochromatic light means a single coloured light.
Statement B: Dispersion takes place when light passes through a prism.

- Both A & B are true
- Both A & B are false
- A is true, B is False
- A is false, B is true

47

Red colour is used in danger signals because:

- It has a higher wavelength
- It can be scattered more
- Its speed is less
- None

48

Sea water appears in blue colour because of:

- Scattering of light
- Dispersion of light
- Reflection of scattered light
- Reflection of sunlight

49

The lens that is used in the experiment that demonstrates 'Tyndall effect' is:

- Concave lens
- Convex lens
- Plano convex lens
- Plano-concave lens

50

The common problem in the eye that occurs in old age is:

- Presbyopia
- Cataract
- Either 1 or 2
- Blindness

51

Speed of all colors is:

- Same in vacuum but not in the atmosphere
- Same in any medium
- Same in the atmosphere but not in vacuum
- Different in both vacuum and atmosphere

52

The range of vision of the normal human eye is:

- Less than near point and more than far point.
- More than near point and less than far point.
- Between near point and far point
- Anywhere

53

Time taken by sunlight to reach the earth is:

5 minutes 8 minutes 10 minutes 20 minutes

54

The image formed by the eye-lens on the retina is:

Real, upright, enlarged Real, upright, diminished Real, inverted, diminished
Virtual, inverted, diminished

55

The intensity of light entering our eye is controlled by the

Iris Pupil Cornea Ciliary muscles

56

A person suffering from short sightedness is not able to see objects at infinity because the rays coming from infinity converge:

Before the retina Behind the retina On the retina
At the middle of the eye-lens

57

Dispersion of light by a glass prism takes place because

Lights of different colors have different intensities.
Lights of different colors have different speeds in a medium.
Lights of different colors have different frequencies.
Lights of different colors have different energies.

58

The color of light which is deviated least by a prism in the spectrum of white light is:

Red Green Violet Yellow

59

Which of the following is a source of ultraviolet light?

Electric bulb Red hot iron ball Sodium vapour lamp Carbon arc lamp

60

If a red rose is viewed through a blue filter, it will appear:

Red Blue Yellow Black

61

A man uses spectacles of power +2.5 D. Which of the following conditions is he suffering from?

Myopia Hypermetropia Presbyopia Night-blindness

62

A person with a myopic eye cannot see objects beyond a distance of 1.5 m. The power of the corrective lens used to restore proper vision is:

6.7 D 0.67 D - 6.7 D - 0.67 D

63

If the far point of a myopic person is 100 cm, then the lens he has to use is:

1 D concave 1 D convex 2 D concave 2D convex

64

A person wears glasses of power – 2.5 D. Then his far point without glasses is:

– 40 cm – 50 cm – 60 cm -70 cm

65

Astigmatism can be corrected by using a:

Convex lens Concave lens Cylindrical lens Bifocal lens

66

Colour blindness is due to the absence of ____ .

Rod-shaped cells Cone-shaped cells Either 1 or 2 Neither 1 or 2

67

Cinematography makes use of _____ .

Accomodation Least distance of distinct vision Persistence of vision
Bifocal lens system

68

The near point of a hypermetropic eye is 1 m and the near point of a normal eye is 25 cm. The lens required to correct this defect is:

3D concave 3D convex 2D concave 2D convex

69

The range of vision of a normal human eye is:

Less than the near point and more than farpoint
More than the near point and less than the farpoint
Between the near point and the farpoint Anywhere

70

Grass appears green because it

Reflects green light Absorbs green light Refracts green light
Adsorbs green light

71

Which of the following carries visual signals in the form of electromagnetic waves to the brain?

Iris Ciliary muscles Optic nerve Retina

72

Match the following(given terms as their usual meaning):

a) ∠i	i) angle of emergence
b) ∠r	ii) angle of incidence
c) ∠e	iii) angle of prism
d) ∠A	iv) angle of refraction

a-i, b-ii, c-iii, d-iv a-ii, b-iv, c-i, d-iii a-ii, b-iv, c-i, d-iii a-ii, b-i, c-iv, d-iii
a-ii, b-iv, c-iii, d-i

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