

QB365

## Important Questions - The Human Eye and the Colourful World

10th Standard CBSE

Science

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

### Section - A

- 1) The human eye forms the image of an object at its 1  
(a) Cornea (b) Iris (c) Pupil (d) Retina
- 2) At noon the sun appears white as 1  
(a) light is least scattered (b) all the colours of the white light are scattered away  
(c) blue colour is scattered the most (d) red colour is scattered the most
- 3) Twinkling of stars is due to atmospheric 1  
(a) dispersion of light by water droplets  
(b) refraction of light by different layers of varying refractive indices  
(c) scattering of light by dust particles (d) internal reflection of light by clouds
- 4) Which of the following statements is correct regarding the propagation of light of different colours of white light in air? 1  
(a) Red light moves fastest (b) Blue light moves faster than green light  
(c) All the colours of the white light move with the same speed  
(d) Yellow light moves with the mean speed as that of the red and the violet light
- 5) Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset? 1  
(a) Dispersion of light (b) Scattering of light (c) Total internal reflection of light  
(d) Reflection of light from the earth
- 6) When light rays enter the eye, most of the refraction occurs at the 1  
(a) crystalline lens (b) outer surface of the cornea (c) iris (d) pupil
- 7) Which of the following statement is correct? 1  
(a) A person with myopia can see distant objects clearly  
(b) A person with hypermetropia can see nearby objects clearly  
(c) A person with myopia can see nearby objects clearly  
(d) A person with hypermetropia cannot see distant objects clearly
- 8) Name the part of our eyes that help us to focus near and distant objects in quick succession. 1
- 9) What will be the colour of the sky, when it is observed from a place in the absence of any atmosphere? Why? 1
- 10) Name a defect of vision which cannot be corrected by any type of spectacle lenses. 1

### Section - B

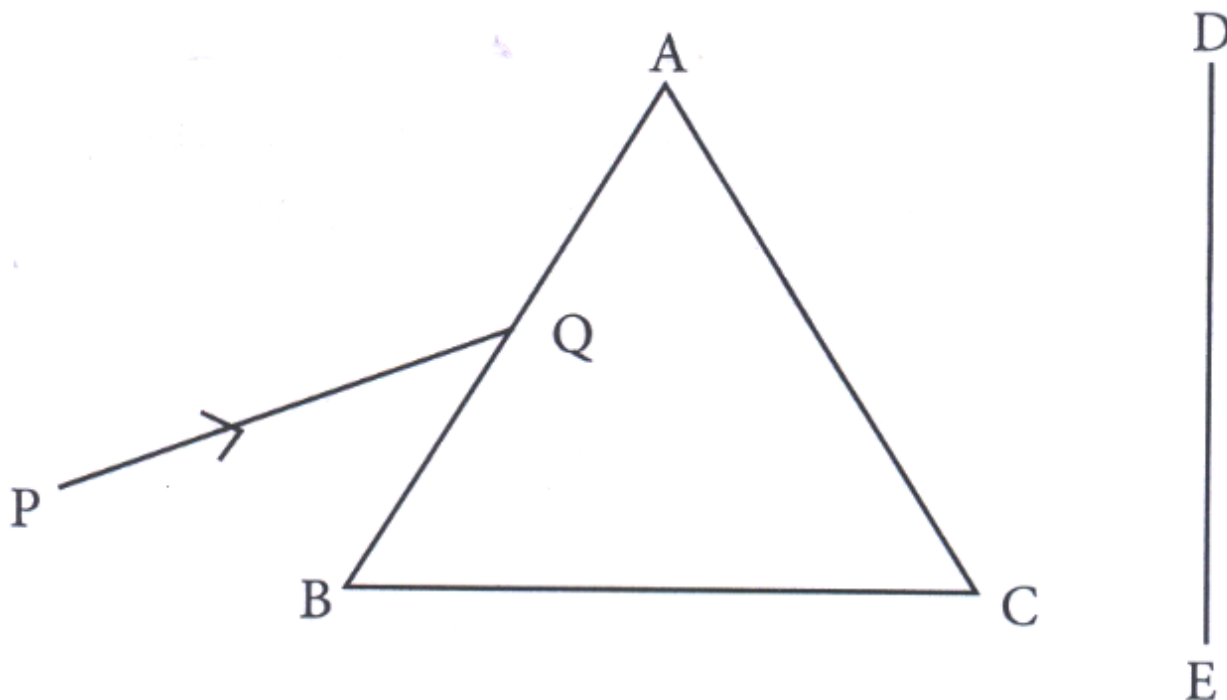
- 11) Explain why the planets do not twinkle. 2
- 12) Mention few important features of visual system of a person? 2
- 13) A person needs a lens of power  $-4.5\text{D}$  for correction of her vision 2
- (a)What kind of defect in vision is she suffering from?
- (b)What is the focal length of the corrective lens?
- (c)What is the nature of the corrective lens?
- 14) Draw a ray diagram showing through a prism when a narrow beam of white light is incident on one of its refracting surfaces.Also indicate the order of the colours of the spectrum obtained. 2
- 15) Why do we see a rainbow in the sky only after rainfall? 2
- 16) What is the difference in colours of the Sun observed during sunrise/sunset and noon?Give explanation for each 2
- 17) Give reasons: 2
- (i)The extent of deviation of a ray of light on passing through a glass prism depends on its colour.
- (ii)Lights of red colour are used for danger signals.
- 18) (a)What are the values of (i)near point and (ii) far point of vision of a normal adult person? 2
- (b)A student has difficulty in reading the blackboard while sitting in the last row.What could be his defect of vision?Draw a ray diagram to illustrate this defect of vision
- 19) Define the term dispersion of white light.State the colour which bends (i)the least and (ii)the most while passing through a glass prism. 2
- 20) What is a spectrum?Why do different coloured rays deviate differently on passing through a glass prism? 2

### Section - C

21) A narrow beam PQ of white light is passing through a glass prism ABC as shows in the diagram.

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- (i) Write the name and cause of the phenomenon observed.
- (ii) Where else in nature is this phenomenon observed?
- (iii) Based on this observation, state the conclusion which can be white light.



22) (a) Explain the following terms used in relation to defects in vision and correction provided by them:

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- (i) Myopia (ii) Astigmatism
- (iii) Bifocal lenses (iv) Far-sightedness.

(b) Why is the normal eye unable to focus on an object placed within 10cm from the eye?

23) (a) List the parts of the human eye that control the amount of light entering into it. Explain how they perform this function.

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(b) Write the function of retina human eye.

(c) Do you know that the corneal impairment can be cured by replacing the defective cornea with the cornea of the donated eyes? How and why should we organise groups to motivate the community members to donate their eye after death?

24) (a) Write the function of each of the following parts of human eye:

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cornea; iris; crystalline lens; ciliary muscles

(b) Millions of people of the developing countries of the world are suffering from corneal blindness. These persons can be cured by replacing the defective cornea with the cornea of a donated eye. A charitable society of your city has organised a campaign in your neighbourhood in order to create awareness about this fact. If you are asked to participate in this mission how would you contribute in this noble cause?

- (i) State the objective of organising such campaigns.
- (ii) List two arguments which you would give to motivate the people to donate their eyes after death.
- (iii) List two values which are developed in the persons who actively participate and contribute in such programmes.

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