QB365 Question Paper Software
10th Standard - Science
The Human Eye and the Colourful World Assertion and reason

Exam Time: 00:20 Hrs

Date: 2025-10-11

Total Marks: 10

Questions:

Assertion and reason

1. **Assertion:** A human being has a horizontal field of view of about 150° with one eye and of about 180° with two eyes.
   Reason: This enables to detect faint objects and enhance it with two detectors instead of one.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false.

2. **Assertion:** With one eye open we can see things in one dimension.
   Reason: By opening two eyes we can see in two dimension.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false.

3. **Assertion:** Blue light scatters the most in the atmosphere
   Reason: The wavelength of blue light is more than the red light
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

4. **Assertion :** Iris control the size of the pupil
   Reason : Pupil regulates and controls the amount of light entering the eye.
   Codes
   (a) If both assertion and reason are true and the reason is correct explanation of assertion.
   (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
   (c) If assertion is true and reason is false.
   (d) If both assertion and reason are false

5. **Assertion:** Human eye lens uses the property of convergence to get the image on retina
Reason: The eye lens act as convex lens.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false

6. **Assertion:** Rainbow is an example of the dispersion of sunlight by the water droplets.
Reason: Light of shorter wavelength is scattered much more than light of larger wavelength.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

7. **Assertion:** Higher the refractive index of the prism material, lower is the angle of deviation.
Reason: The angle of deviation is directly proportional to the angle of prism.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

8. **Assertion:** The twinkling of stars is due to the fact that refractive index of the earth's atmosphere fluctuates.
Reason: When light propagates from one medium to another its direction of propagation changes.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

9. **Assertion:** The light of violet colour deviates the most and the light of red colour the least, while passing through a prism.
Reason: For a prism material, refractive index is highest for red light and lowest for the violet light.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

10. Assertion (A) : Red light signals are used to stop the vehicles on the road.
Reason (R) : Red coloured light is scattered the most so as to be visible from a large distance.
(a) If both Assertion and Reason are true and Reason is the correct explanation of

Assertion.
(b) If both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.
(c) If Assertion is true, but Reason is false.
(d) If Assertion is false, but Reason is true.

Answers Key:

Assertion and reason

1. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
2. (d) If both assertion and reason are false.
3. (c) If assertion is true and reason is false.(The wavelength of red light is more than blue)
4. (b) If both assertion and reason are true but reason is not a correct explanation of assertion.
5. (a) If both assertion and reason are true and the reason is correct explanation of assertion.
6. **(b):** The rainbow is an arch of seven colours visible in the sky which is produced by the dispersion of sun's light by raindrops in the atmosphere.
7. **(d):** Higher the refractive index of the prism material, greater is the angle of deviation.
8. **(a):** The continuously changing atmosphere is able to cause variation in the light coming from a point-sized star because of which the star appears to be twinkling.
9. **(c):** For a prism material refractive index is highest for violet light and lowest for the red light.
10. (c) The primary reason, why the colour red is used for danger signals is that red light is scattered the least by air molecules present in the atmosphere.