UDAAN 2025

PHYSICS

DHA : 02

Human Eye & the Colorful World

Q1 The colour of light which is deviated the least by a Prism in the spectrum of white light is

(A) red (B) green

(C) violet (D) yellow

Q2 A Prism splits a beam of light into 7 colours this is because

(A) Wavelength is different

(B) energy is different

(C) amplitude is different

(D) phase is different

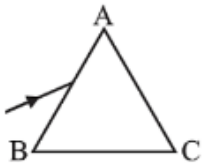
Q3 How many times does a Ray of light bend on passing through a prism

(A) once (B) twice

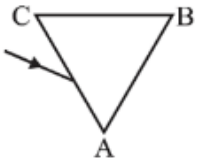
(C) thrice (D) four-times

Q4 A Prism ABC with BC as base is placed in a different orientation. A narrow beam of light is incident on the prisms as shown in the figure. In which of the following cases after dispersion third colour from top corresponds to the colour of the sky?

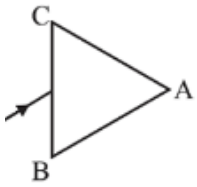
(A)



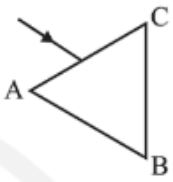
(B)



(C)



(D)

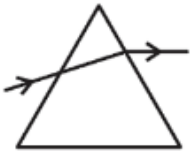


Q5 Which of the following figures correctly shows the bending of a monochromatic light inside the prism?

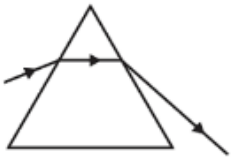
(A)

(B)

(C)

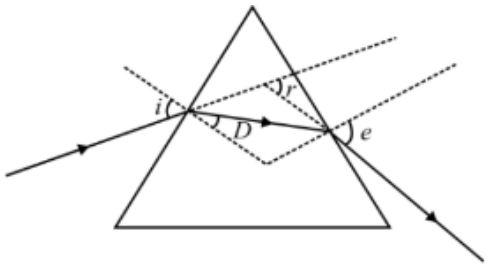


(D)



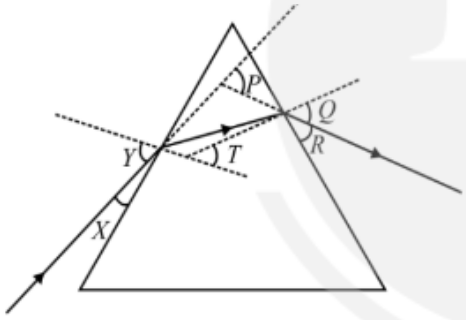
Q6 After tracing the path of a ray of light through a glass prism a student marked the angle of

incidence $(\angle i)$, angle of refraction $(\angle r)$, angle of emergence $(\angle e)$ and the angle of deviation $(\angle D)$ as shown in the diagram. The correctly marked angles are?



(A) $(\angle i)$ and $(\angle r)$
(B) $(\angle i)$ and $(\angle e)$
(C) $(\angle i), (\angle e)$ and $(\angle D)$
(D) $(\angle i), (\angle r)$ and $(\angle e)$

Q7 In the following diagram, the path of a ray of light passing through a glass prism is shown. In this diagram the angle of incidence, the angle of emergence and the angle of deviation respectively are (select the correct option)



(A) X, R and T
(B) X, R and T
(C) X, Q and P
(D) Y, Q and P

Q8 When a Ray passes through a prism
(A) it goes undeviated
(B) it remains parallel to the base
(C) it bends towards the base
(D) none of the above

Answer Key

Q1	(A)	Q5	(D)
Q2	(A)	Q6	(B)
Q3	(B)	Q7	(D)
Q4	(B)	Q8	(C)

Hints & Solutions

Q1 **Text Solution:**

The spectrum of white light consists of seven colours arranged in a specific order: From longest to shortest wavelength, they are: red, orange, yellow, green, blue, indigo, and violet.

Video Solution:

Q2 **Text Solution:**

When light passes through a prism the light bends. As a result, the different colors that make up white light become separated. This happens because each color has a particular wavelength and each wavelength bends at a different angle.

Video Solution:

Q3 **Text Solution:**

A Ray of light bend twice on passing through a prism.

Video Solution:

Q4 **Text Solution:**

The spectrum of white light from top to bottom : red, orange, yellow, green, blue, indigo, and violet.

Video Solution:

Q5 **Text Solution:**

A Ray of light bend twice on passing through a prism.

Video Solution:

Q6 **Text Solution:**

Angle of deviation is the angle between the incident ray and the emergent ray while angle of refraction is the angle between the refracted ray and the normal at the point of incidence.

Video Solution:

Q7 **Text Solution:**

Angle of deviation is the angle between the incident ray and the emergent ray, angle of incidence is the angle between the incident ray and the normal at the point of incidence, angle of emergence is the angle between the emergent ray and the normal at the point of Incidence.

Video Solution:

Q8 Text Solution:

When a ray passes through a prism it bends towards the base.

Video Solution: