

Question 1

Answers:

1) Define

a) **Dispersion of light**

Dispersion of light is the separation of white light or visible light into different colors is known as dispersion.

b) **Monochromatic light.**

Light of a single wavelength is known as monochromatic light.

c) **Complementary Colors.**

Complementary colours are pairs of colours that contrast with each other more than any other colour, and when placed side-by-side make each other look brighter.



Question 2

What is dispersion of white light?

Answers:

The dispersion of white light results in splitting up of white light into seven colours also known as a spectrum of white light. White light is a mixture of seven colours: red, orange, yellow, green, blue, indigo and violet.

Explanation:

The dispersion of white light occurs because the angle of refraction of lights of different colours is different when passing through a glass prism, the red colour deviates the least and blue colour deviates the most.



CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 3

What do you understand by invisible spectrum?

Answers:

The portion of the spectrum either below infrared or above the ultraviolet, which is invisible to the eye, the waves being too long or too short to affect the retina.



CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 4

State the electromagnetic radiations beyond red of visible spectrum.

Answers:

Beyond the red end of the visible spectrum is infrared radiation.



RISING STAR ONLINE ACADEMY
+923314097486

CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 5

Explain why does the sun or the moon appear bigger in size, when they are just about to rise or set?

Answers:

The horizon moon or sun is perceived as larger because of an optical illusion.



RISING STAR ONLINE ACADEMY
+923314097486

Question 6

Why is the red coloured light used as a universal signal for danger. Explain?

Answers:

The red colored light having longer wavelength, due to this the red light can be seen in the same color even from a distance. This is the reason why 'Danger' signals are red in color.



CHAPTER 6

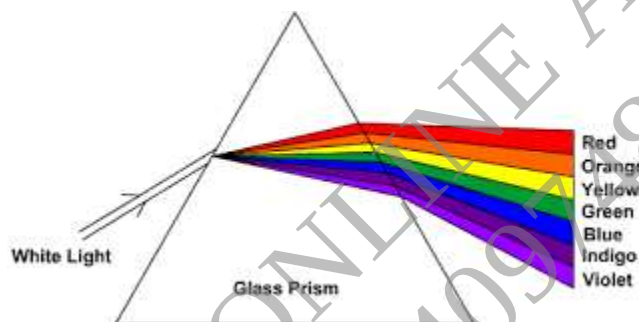
PHYSICS DISPERSION OF LIGHT

Question 7

Using a suitable ray diagram, explain the phenomenon of dispersion of white light through a glass.

Answers:

Dispersion is the phenomena of splitting of white light into seven colors. The band of colored components of seven colors is known as spectrum.



Explanation:

As light ray travels through glass prism, different colors of light bend at different angles to the incident ray. The violet light bends the most and the red light bends at least angle. The rays of prism bends along different paths and becomes distinct.



CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 8

State a natural phenomenon which is caused by the dispersion of sunlight in the sky.

Answers:

Rainbow, because sunlight splits into 7 colors, namely, violet, indigo, blue, green, yellow, orange and red.



CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 9

What colour when added to red will give white?

Answers:

When we add green and blue with red color, you get white color.



RISING STAR ONLINE ACADEMY
+923314097486

CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 10

What colour subtracted from red will give black?

Answers:

Dark red colour.



RISING STAR ONLINE ACADEMY
+923314097486

Question 11

What do you understand by invisible spectrum?

Answers:

The portion of the spectrum either below infrared or above the ultraviolet, which is invisible to the eye, the waves being too long or too short to affect the retina.



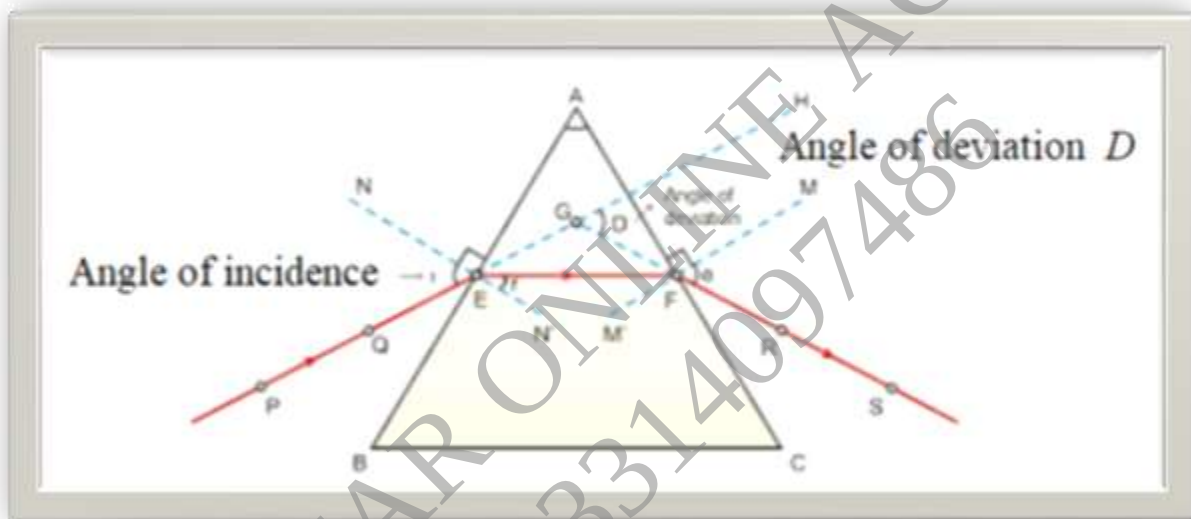
CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 12

Draw a diagram showing the dispersion of light.

Answers:



Question 13

Why do the green and magenta pigments, when mixed, produce black colour and not white?

Answers:

Because the wavelength of green colour plus wavelength of Magenta colour is equal to Wavelength of Black.
So Black colour produces instead of white.



CHAPTER 6

PHYSICS DISPERSION OF LIGHT

Question 14

State the meaning of the term VIBGYOR.

Answers:

VIBGYOR means the Violet , Indigo , Blue ,Green, Yellow , Orange, Red .



RISING STAR ONLINE ACADEMY
+923314097486

CHAPTER 6

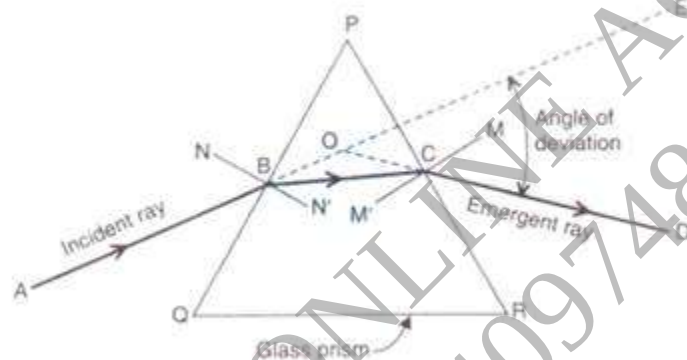
PHYSICS DISPERSION OF LIGHT

Question 15

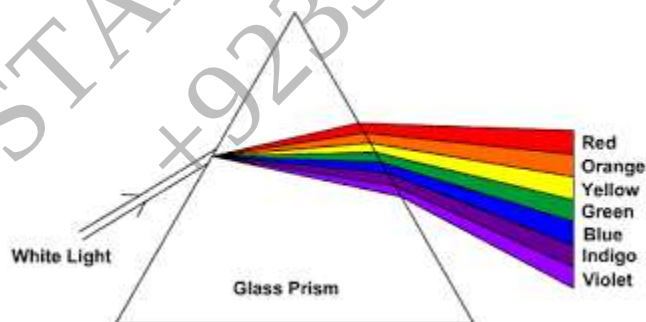
Draw two diagrams to explain refraction and dispersion.

Answers:

Refraction



Dispersion



CHAPTER 6

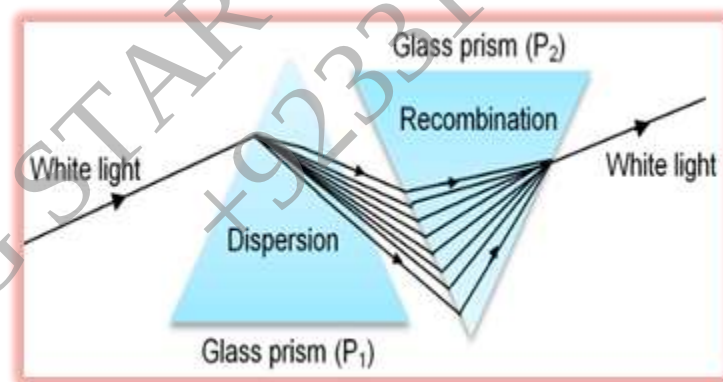
PHYSICS

DISPERSION OF LIGHT

Question 16

Draw a diagram to illustrate that white light is composed of colours.

Answers:





Question 17

How will you investigate the existence of ultra-violet and infra-red radiations.

Answers:

Ultraviolet radiations are present at a violet extreme of the spectrum. It is detected UV radiations are passed through silver chloride solution.

Firstly, violet color appears then turn into dark brown color.

Infra-red radiations are present at a red extreme of the spectrum.

If these radiations are placed around a blackened bulb thermometer.

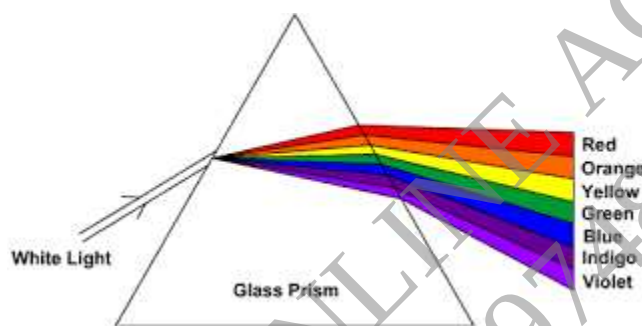
It shows several readings on it.



Question 18

Draw a diagram showing the dispersion of light. Can a glass slab disperse light? Explain.

Answers:



The dispersion occurs in prism but not in glass slab because of the geometric design. In a slab, the opposite sides are parallel to each other

Question 19

Why do blue and yellow pigments, when mixed, produce green colour and not white?

Answers:

Because blue pigment and yellow pigment both reflect middle (green appearing) wavelengths when blue and yellow pigments are mixed together, the mixture appears green.



Question 20

What will happen if blue and yellow colours of spectrum mix together?

Answers:

When you mix two primary colours, you get the secondary colour. When we mix blue and yellow colours, it would make green.





Question 21

A poster coloured with green, yellow and red pigments is observed through a pure green filter. How do the following appear to the observer on

- a) The green part of the poster?
- b) The yellow part of the poster?
- c) The red part of the poster?

Answers:

- a) Green

Explanation: green + green = Green colour.

- b) Lime colour

Explanation: Yellow and green color mix make a Lime color.

- c) Yellow

Explanation: When the red and green lights mix, the result is yellow.



Question 22

A plant with green leaves and red flowers is placed in Green, red and blue light. What colour will the leaves and flowers appear in each case? Assume all colours to be pure.

Answers:

The green leaves will reflect green colour and not effect the light but will absorb blue and red colour light giving dull colour and in flower it will absorb blue and green light giving out dull colour and fully reflect red light.

CHAPTER 6 PHYSICS

DISPERSION OF LIGHT



Question 23

Complete the following table.

No.	The colour of the object in white light	Colour in green light	Colour in blue light	Colour in red light
1	White	Green	Blue	Red
2	Black	Black	Black	Black
3	Yellow	Lime	Green	Orange
4	Green	Green	Black	Black
5	Blue	Cyan	Blue	Black
6	Red	Black	Black	Red

CHAPTER 6

PHYSICS

DISPERSION OF LIGHT

Question 24

Three coloured lights, one blue and two others A and E, overlap on a white screen as shown in figure. Same colours are formed as shown

Fill in the mixing colours when:

Answers:

- a) The position A is Red
- b) The position G is Blue
- c) The position E is **Green**
- d) The position B is **Yellow**
- e) The position C is **Magenta**
- f) The position D is **White**
- g) The position F is **Cyan**



Question 25

The diagram below represents the overlapping circles of equally intense light of different pure colours.

Assumes that the circles are projected onto a white screen in an otherwise completely dark room.



Answers:

1. **No light shines on this part** Why would region A be black?
2. **Magenta** Why color would region B be?
3. **Cyan** Why color would region C be?
4. **Yellow** Why color would region D be?
5. **White** Why color would region E be?
6. **Primary** Are red, blue and green light primary or secondary colors?
7. **Secondary** is the light in region C best describes as a primary or secondary colour?
8. **Secondary** is the light in region D best describes as a primary or secondary colour?
9. **Green** The color in region B is complement to which color?
10. **Red** The color in region C is complement to which color?
11. **Blue** The color in region D is complement to which color?
12. If you focus a red light, a green light and a blue light on the same part of a black curtain, what color will be curtain appear to be? Why ?

Answer: They combine to make the secondary pigments red, blue, and green.