

CLASS -10
CBT SEPTEMBER
CASE STUDY

Human eye and colourful world

1. When a ray of light incident on a prism it will split in seven colours that is called dispersion of light. A prism is a transparent refracting body bounded by plane faces which are inclined to each other at a particular angle called angle of prism. When a ray of light passes through a prism, it suffers refraction twice and hence the ray deviates through a certain angle from its original path. The angle between the incident ray and emergent ray is called angle of deviation.

(i). For which colour the angle of deviation is minimum?

- (a) Red (b) Blue (c) Violet (d) Yellow

ANS: (a) Red

Explanation : Refractive index for Red is less

(ii) When a white light falls on a prism, the ray at its surface suffers:

- (a) Refraction only (b) dispersion only (C) deviation only (d) all of above

Ans: (d) all of above

Explanation : All three will take place





(iii) In nature, dispersion of light is happening in

- (a) Blue colour of sky (b) Formation of rainbow (c) Twinkling of stars (d) advance sunrise

Ans: (b) Formation of rainbow

Explanation :- White light is split into seven colours.

(iv) How will you use two prisms for recombination of the spectrum of white light?

- (a) 
- (b) 
- (c) 
- (d) 

Ans: (c)

Explanation : Recombination will appear white light again.

(v) The reason for an astronaut seeing the colour of the sky black is-

- (a) Dispersion of light does not occur in space. (b) Reflection of light does not occur in space.
(c) Scattering of light does not occur in space. (d) Refraction of light does not occur in space.

Ans: (c) Scattering of light does not occur in space.

Explanation : Due to absence of atmosphere in space.

Acids, Bases and salts

Question 2

There are so many important compounds known, which have some characteristic properties like Bleaching powder used as an disinfectant, POP used for joining fractured bones, Baking powder used for making dhoklas and baking cake, Sodium chloride as a table salt etc . These properties make these compounds very useful in our daily routine.

(i). Bleaching powders chemical name is

- (a) calcium hypo oxychloride (b) calcium oxychloride
(c) calcium chloride (d) calcium chloro oxide

Ans: (b) calcium oxychloride

Explanation : CaOCl_2

(ii). The ratio of the water molecule in plaster of paris and gypsum is

- (a) 3:1 (b) 1:3
(c) 1:4 (d) 4:3

Ans: (c) 1:4

Explanation : Gypsum is calcium sulphate with 2 moles of water and plaster of paris has 1/2 moles of water. The difference is 3/2 moles of water

(iii). Baking powder is

- (a) sodium carbonate + sodium tartaric (b) sodium bicarbonate + sodium tartaric
(c) sodium carbonate + tartaric acid (d) sodium carbonate + sodium benzoate

Ans: (b) sodium bicarbonate + sodium tartaric

Explanation : Correct Formula

(iv). Washing soda is prepared by:

- (a) Solvay's process
(b) Hessen clever process

(c) Castner-kellner process

(d) None

Ans:(a) Solvay's process

Explanation : Washing soda is synthesized through Solvay's process. Solvay's process involves the reaction of sodium chloride, ammonia and carbon dioxide in water. Carbon dioxide involved is produced through calcium carbonate and the calcium oxide left is used in recovering ammonia from ammonium chloride.

(v). Brine is an

(a) aqueous solution of sodium hydroxide (b) aqueous solution of sodium carbonate

(c) aqueous solution of sodium chloride (d) aqueous solution of sodium bicarbonate

Ans: (c) aqueous solution of sodium chloride

Explanation : Brine is an aqueous solution of Sodium chloride or Common salt (NaCl). A 10% solution of NaCl is termed brine.