

A+B<sub>1</sub>+B<sub>2</sub>

उत्तराखण्ड विद्यालयी शिक्षा परिषद्, रामनगर (नैनीताल)

हाईस्कूल परीक्षा  
(उत्तराखण्ड)

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### Question-1 Answer (क)

(iv) All of the above statements are true.

### Question-1 Answer (ख)

(iv) Decomposition of silver chloride in the presence of sun light.

### Question-1 Answer (ग)

(ii) Ant sting — Oxalic acid.

### Question-1 Answer (घ)

(iii) Malleability.

### Question-1 Answer (ङ)

(i) Propanal.

### Question-1 Answer (च)

(i) Respiration.

### Question-1 Answer (छ)

(ii) Yeast.

### Question-1 Answer (ज)

(iii) atmospheric refraction of light.

### Question-1 Answer (झ)

(ii) Less than the smallest resistance.

### Question-1 Answer (ञ)

(iv) is the same at all points.

### Question-2 Answer (क)

@ Both (A) and (R) are correct and (R) is the correct explanation of (A).

### Question-2 Answer (ख)

@ Both (A) and (R) are correct and (R) is the correct explanation of (A).

### Question-3 Answer

Xylem tissue.

### Question-4 Answer

The chemical reaction within a chemical cell generates potential difference between its two terminals that sets the electrons in motion to the current through a resistor or group of resistors connected to battery.

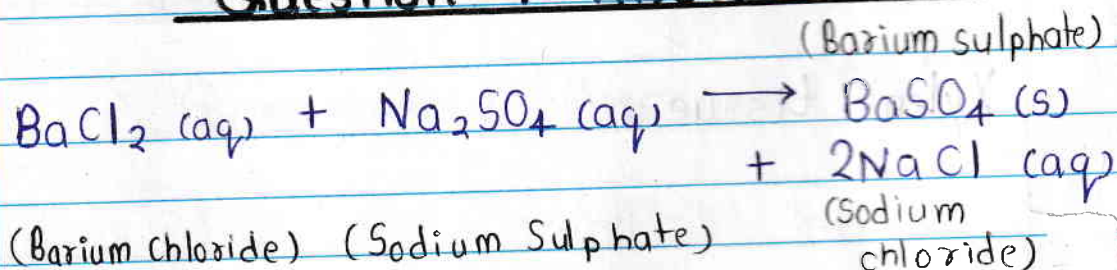
### Question-5 Answer

To obtain a virtual image of an object, the position of the object should be between  $F_1$  and Optical Centre i.e. less than 30 cm from the optical centre.

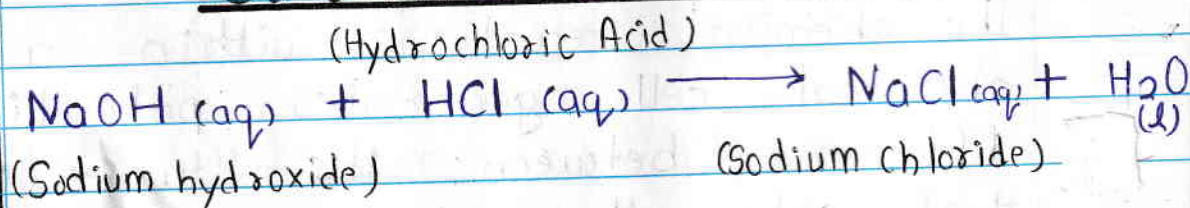
### Question-6 Answer

Kitchen waste.

### Question-7 Answer (i)



### Question-7 Answer (ii)



## Question-8 Answer

| S.N. | Base                                                                                     | Alkali                                             |
|------|------------------------------------------------------------------------------------------|----------------------------------------------------|
| (i)  | Bases are the substances that are bitter in taste and yield $\text{OH}^-$ ions in water. | Alkali are those bases which are soluble in water. |

### Two Physical Properties of Alkali :

- (i) Alkali are water soluble bases which turn red litmus to blue,
- (ii) Alkalis such as  $\text{NaOH}$  and  $\text{KOH}$  are soapy in touch and corrosive.

## Question-9 Answer

Ionic compounds have very high melting and boiling points because they are attracted by strong interionic force of attraction, between positive and negative ions. A considerable amount of energy is required to break these bonds.

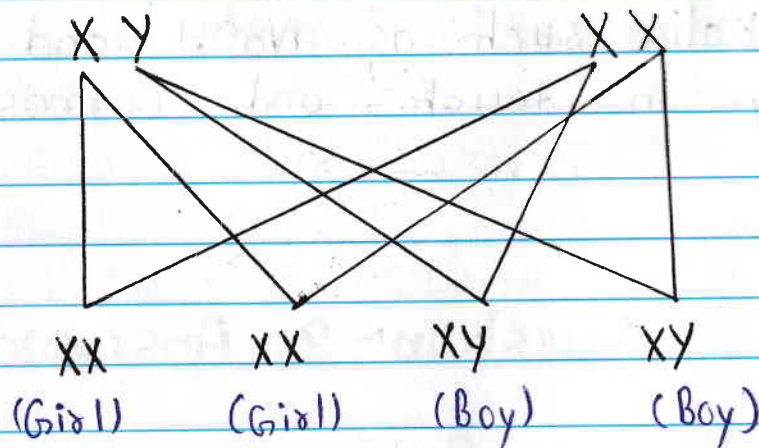
## Question-10 Answer

The role of father is important in the sex determination of a child, because males have XY sex chromosomes while the females have XX sex chromosome. If X chromosomes of father fuses with X chromosome of mother then girl child born.

If Y chromosomes of father fuses with X chromosomes of mother then boy child born.

Father

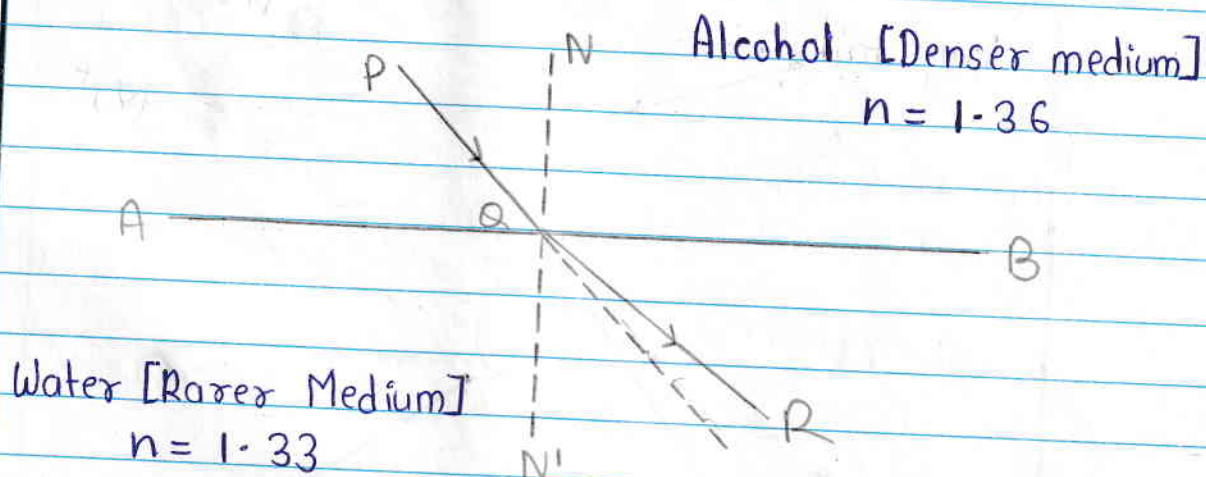
Mother



## Question - 11 Answer

- Part A is mid-brain.
- Part B is cerebellum.
- Part C is pituitary gland.
- Part D is hypothalamus.

## Question - 12 Answer



- This phenomenon is Refraction of light. When light enters to a rarer medium from a denser medium then it bends away from the normal.

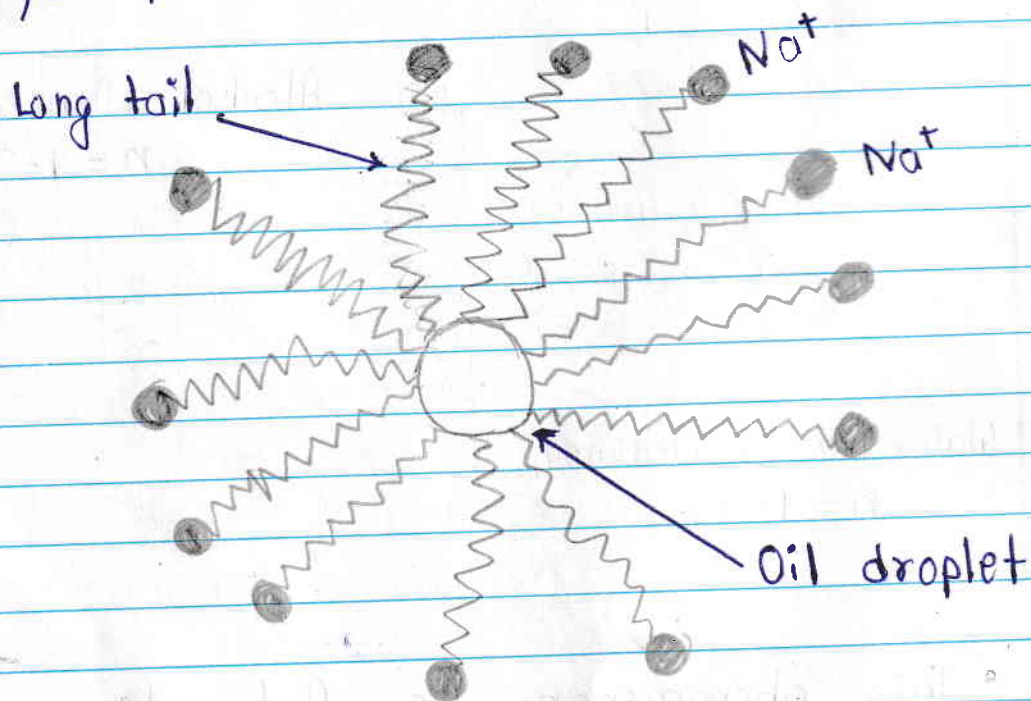
## Question- 13 Answer

### Mechanism of cleaning Action of Soap

Soaps are the sodium or potassium salts of long chain carboxylic acid. They have two parts -

- (i) Ionic end,
- (ii) Long tail.

Ionic end is hydrophilic (water loving) while long tail is hydrophobic (water repelling).



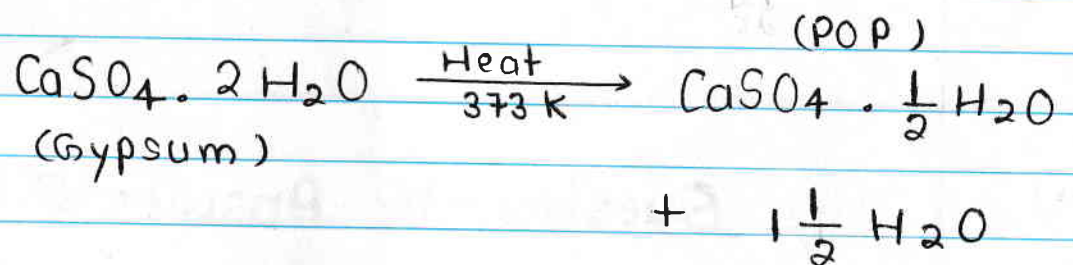
When we add water and Soap to the cloth, they align themselves in a pattern called <sup>micelle</sup>. When cloths <sup>box</sup> are beaten <sup>clean</sup> and rinsed with plenty of water then

cloths or lunch box is cleaned.  
This is the cleaning action of soap which worked with the lunchbox of meena.

### Question-14 Answer (OR)

Plaster of Paris: Plaster of Paris is an important salt. Its chemical name is Calcium sulphate hemihydrate i.e.  $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ .

How it is Obtained?: Plaster of Paris is obtained by heating Gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ) at  $373\text{K}$ .



Uses of POP:

- (i) Plaster of Paris is used in making surfaces smooth,
- (ii) It is used in making toys and statues also.

### Question-15 Answer

- Transport of Oxygen: Oxygen is transported in blood by a red-coloured pigment i.e. haemoglobin.

Haemoglobin has high affinity for oxygen and oxygen travel as 'oxyhaemoglobin'. Plasma also carry oxygen but only 20%.

- Transport of Carbon-dioxide:

Carbon-dioxide is not soluble in blood but in plasma it is transported as 'Bicarbonate ions.'  $\text{CO}_2$  carrying blood (when it travels with plasma) called 'Deoxygenated Blood'.

### Question-16 Answer (OR)

Ans (i)

- Hormone: Growth Hormone.

- Gland: Pituitary gland.

- Function: Stimulates growth in all organs.

### Ans (ii)

- Hormone : Adrenaline .
- Gland : Medulla of Adrenal gland.
- Function : Increase heart beat and blood pressure so that we can face Anger or fear , situation.

### Ans (iii)

- Hormone : Insulin .
- Gland : Pancreas .
- function : Control blood sugar level.

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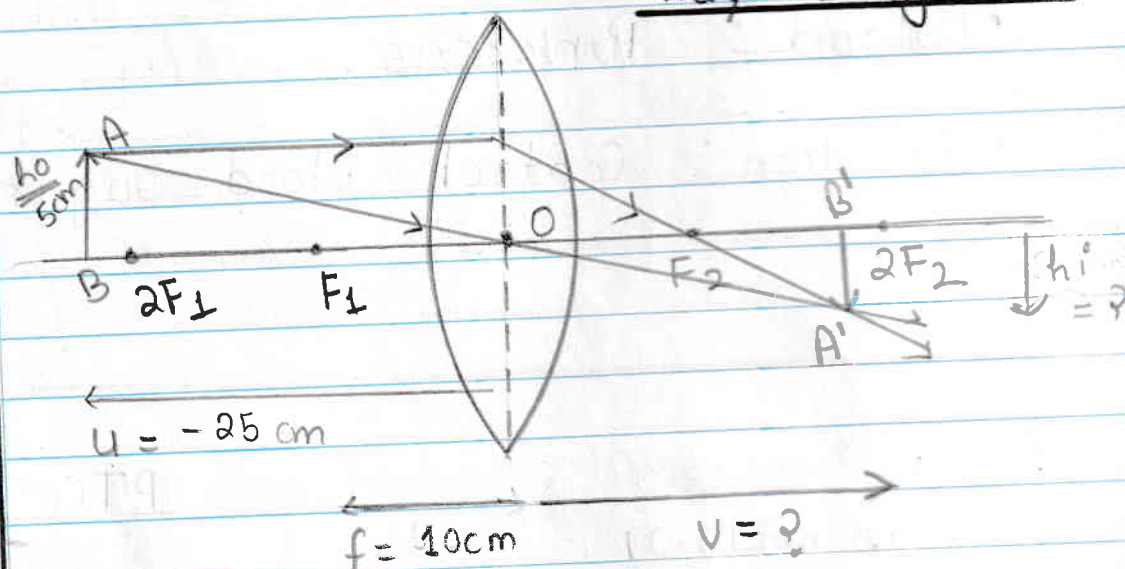
## Question-17 Answer

$$\text{Lens formula} \Rightarrow \frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

Given : height of object ( $h_o$ ) = 5 cm  
Object distance ( $u$ ) = -25 cm  
focal length ( $f$ ) = +10 cm

[Sign +ve is used in focal length as lens is converging, convex]

### Ray Diagram



By lens formula,

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\frac{1}{10} = \frac{1}{v} - \left( \frac{1}{-25} \right)$$

$$\frac{1}{10} = \frac{1}{v} + \frac{1}{25}$$

$$\frac{1}{10} - \frac{1}{25} = \frac{1}{v}$$

$$\frac{1}{v} = \frac{5-2}{50}$$

$$\frac{1}{v} = \frac{3}{50}$$

$$v = \frac{50}{3} \text{ cm}$$

⇒ Image is formed at a distance of  $\frac{50}{3} = 16.67 \text{ cm}$  from the

lens on opposite side where object placed.

from,

$$\text{magnification (m)} = \frac{h_i}{h_o} = \frac{v}{u}$$

$$\frac{h_i}{h_o} = \frac{v}{u}$$

$$\frac{h_i}{5} = -\frac{50/3}{25}$$

$$\frac{h_i}{5} = -\frac{50}{75}$$

$$\frac{h_i}{5} = -\frac{2}{3}$$

$$h_i = -\frac{10}{3} = -3.3 \text{ cm}$$

⇒ Image is smaller than object in size i.e.  $-3.3 \text{ cm}$ . The negative sign represent that image is inverted, hence real.

### Question-18 Answer (i)

To determine the direction of magnetic field around a straight current carrying conductor, we use 'Maxwell's Right Hand Thumb Rule'.

- Right Hand Thumb Rule: 'Imagine if you are holding a straight current

carrying conductor in your right hand such that thumb is pointing toward the direction of current flowing. Then the direction in which fingers wrap will be the direction of magnetic field.

### Question- 18 Answer (i)

We will use 'Fleming's Left Hand Rule' for the given purpose.

• Fleming's Left Hand Rule: It states that,

"If you place the thumb, fore finger and middle finger of your left hand such that they are mutually perpendicular to each other, then if your fore finger is showing the direction of magnetic field, your middle finger is toward direction of electric current, then the thumb will automatically point toward the direction of force."

## Question-19 Answer

Given : i) Resistance of electric lamp,  
 $R_1 = 100 \Omega$

ii) Resistance of electric toaster,  
 $R_2 = 50 \Omega$

iii) Resistance of water filter,  
 $R_3 = 500 \Omega$

iv) Potential difference,  
 $V = 220 \text{ Volt.}$

To find : i) Resistance of Iron <sup>(R)</sup> = ?  
ii) Current flowing = ?

Solution : When,  $R_1$ ,  $R_2$  and  $R_3$  are  
in parallel ;

Then, Resistance of electric Iron

$$\Rightarrow \frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R} = \frac{1}{100} + \frac{1}{50} + \frac{1}{500}$$

$$\frac{1}{R} = \frac{5 + 10 + 1}{500}$$

$$\frac{1}{R} = \frac{16}{500}$$

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$$\frac{1}{R} = \frac{16}{500}$$

$$\frac{1}{R} = \frac{8}{250}$$

$$\frac{1}{R} = \frac{4}{125}$$

$$R = \frac{125}{4} = 31.25 \Omega$$

By ohm's law,

$$V = I \times R$$

So,

$$I = \frac{V}{R} = \frac{220}{31.25}$$

$$I = \frac{22000}{3125} = \frac{176}{25}$$

$$I = 7.04 \text{ Ampere}$$

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## Question-20 Answer

- The name of gas 'X' is Ozone.
- Function of Ozone

Ozone ( $O_3$ ) exists as a triatomic gas. Its main function are -:

- i) Protect the inhabitants of earth from harmful UV rays.
- ii) UV rays are very harmful, they cause cataract and skin cancer. Hence Ozone forms a protective shield in atmosphere.

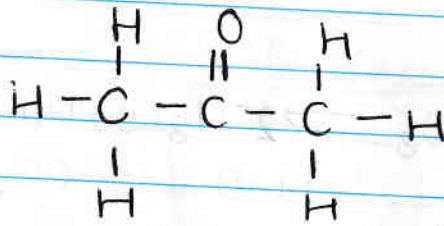
### • Depletion of Ozone

Ozone layer is mainly depleted due to harmful 'chlorofluorocarbons' which is released from refrigerators.

## Question-21 Answer (क)

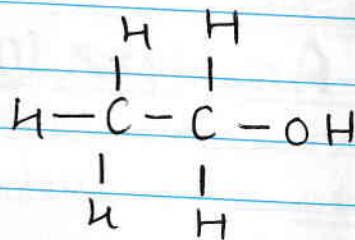
Functional Group: functional groups are those hetero-atoms which provide chemical properties to an organic compound.

Ans - 21-(क)-(i)



• functional Group : ketone.  
( $-\overset{\text{O}}{\underset{||}{\text{C}}}-$ )

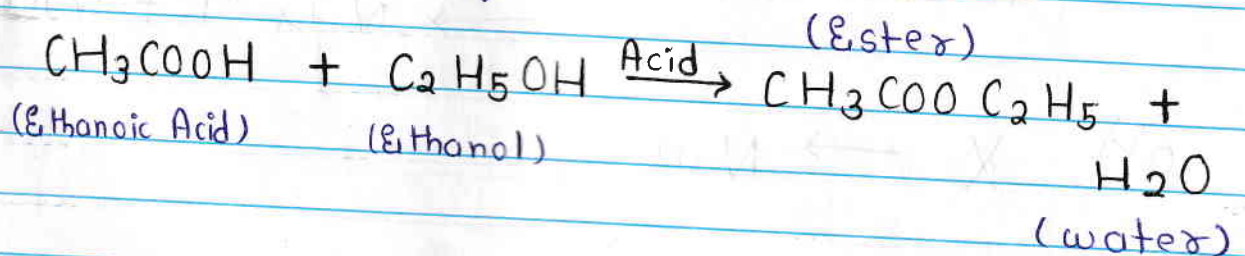
Ans-21-(क)-(ii)



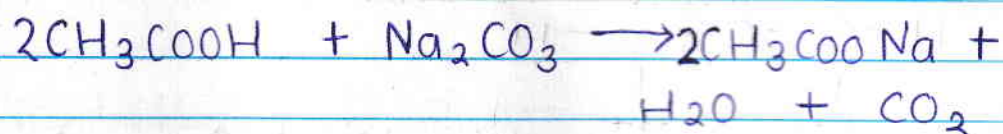
• functional Group : Alcohol or Hydroxyl group (-OH)

Question-21 Answer (द)

When ethanoic acid reacts with the absolute ethanol in presence of acid catalyst then ester and water are formed.



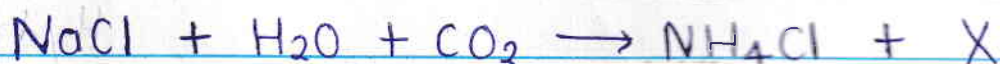
### Question-21 Answer (JT)



Ans:  $2\text{CH}_3\text{COONa}$ .

### Question - 22 Answers (OR)

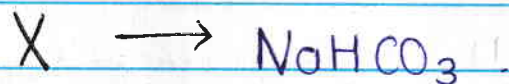
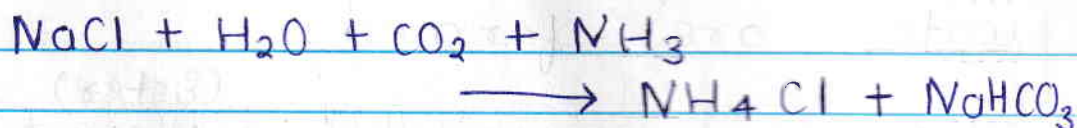
#### Answer (i)



[Given]

The given chemical equation is incorrect.

Correct:



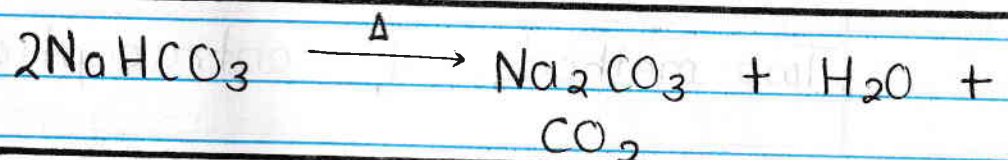
### Answer - (ii)

#### Uses of Baking Soda -:

- (i) It is used for baking cakes.
- (ii) It is used in soda-acid fire extinguishers.

### Answer - (iii)

On heating compound X i.e. Sodium hydrogen carbonate -:



### Question-23 Ans (क)

- i) Bacterial Infection : Gonorrhoea and Syphilis.
- ii) Viral Infection : HIV-AIDS and Warts.

### Question-23 Answer (2d)

Human embryo sex determination is a legal offence because there are rumours that 'only' having son child is good.

People generally kill girl child hence to maintain sex ratio it is a legal offence.

### Question-23 Answer (4T)

Two methods of contraceptions are:-

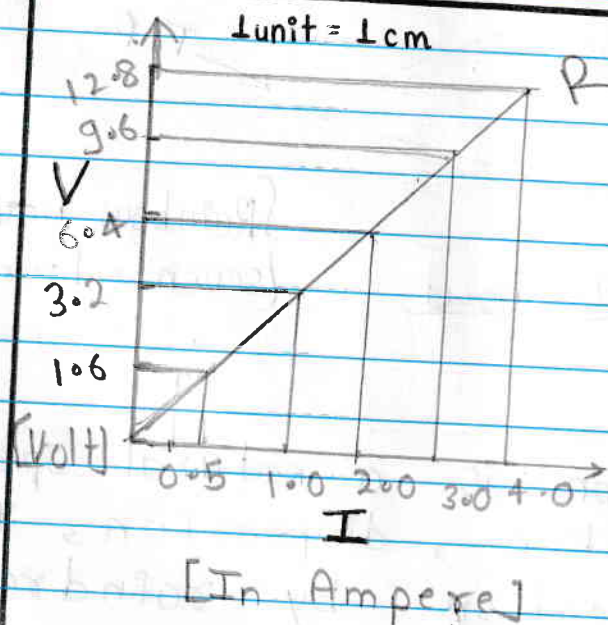
(i) Oral Pills : Oral pills are taken by women that disturb their menstrual cycle. Its side effect is that it can cause pimples on skin and other negative effect.

(ii) Copper-T / Loop : These contraceptives are placed in uterus. They cause itching in uterus and cause STDs also.

## Question-25 Answer (d)

- Ohm's law: This law states that,
  - The current flowing through a conductor is directly proportional to potential difference across its ends, if the physical conditions such as temperature, length etc remain constant.
- Resistance of a conductor depends upon -:
  - ① length of conductor,
  - ② Area of cross-section (inversely),
  - ③ Nature of material,
  - ④ Temperature.

## Question-26 Answer (d)



By Ohm's law

$$V = IR$$

$$R_1 = \frac{V_1}{I_1} = \frac{1.6}{0.5} = 3.2 \Omega$$

$$R_2 = \frac{V_2}{I_2} = \frac{3.2}{1.0} = 3.2 \Omega$$

$$R_3 = \frac{V_3}{I_3} = \frac{6.4}{2.0} = 3.2 \Omega$$

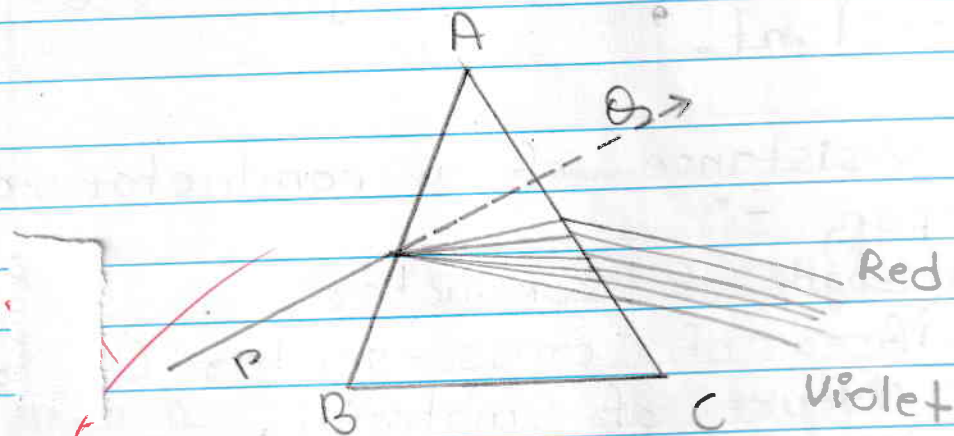
$$R_4 = \frac{V_4}{I_4} = \frac{9.6}{3.0} = 3.2 \Omega$$

$$R_5 = \frac{V_5}{I_5} = \frac{12.8}{4.0} = 3.2 \Omega$$

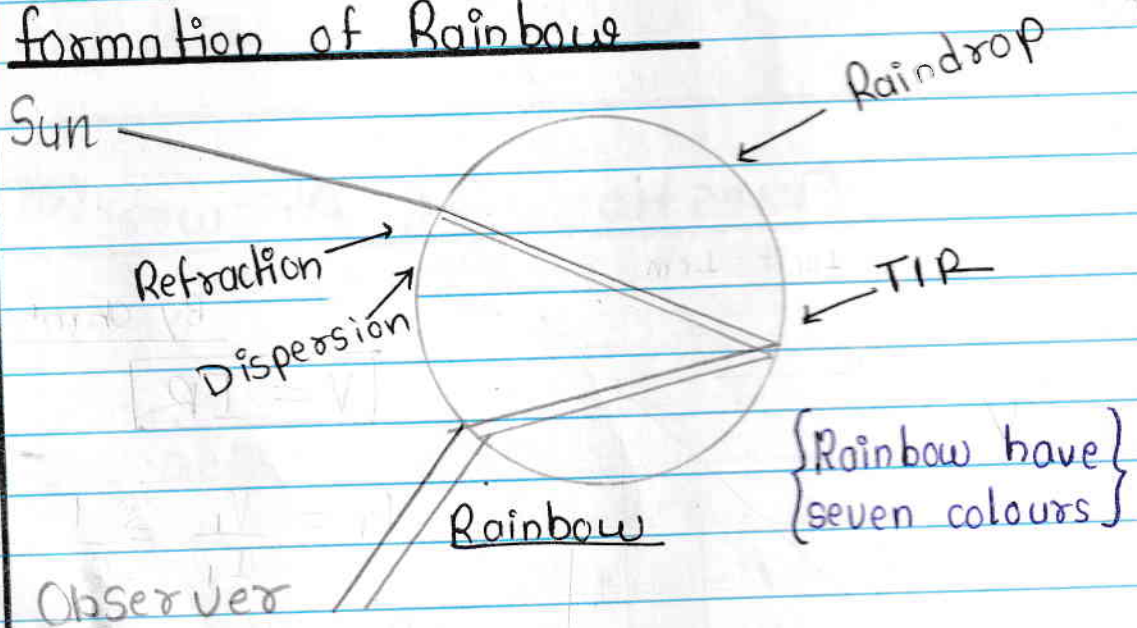
## Question-26 Answer

### Dispersion of Light

The splitting of white light into its constituent seven colours when it passes through prism, called dispersion of light.



### formation of Rainbow



Rainbow formation is a natural spectrum, due to refraction, dispersion, Total Internal reflection by raindrops.



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### Question-27 Answer (i)

Plants get rid of excretory products by -

(i) Shedding their old leaves which contains waste,

(ii) They get rid of excess water by transpiration.

### Question-27 Answer (ii)

The loss of water in the form of vapour from the aerial parts of plant called transpiration.

Transpiration is important because plant use this in transpiration pull and get rid of excess water.

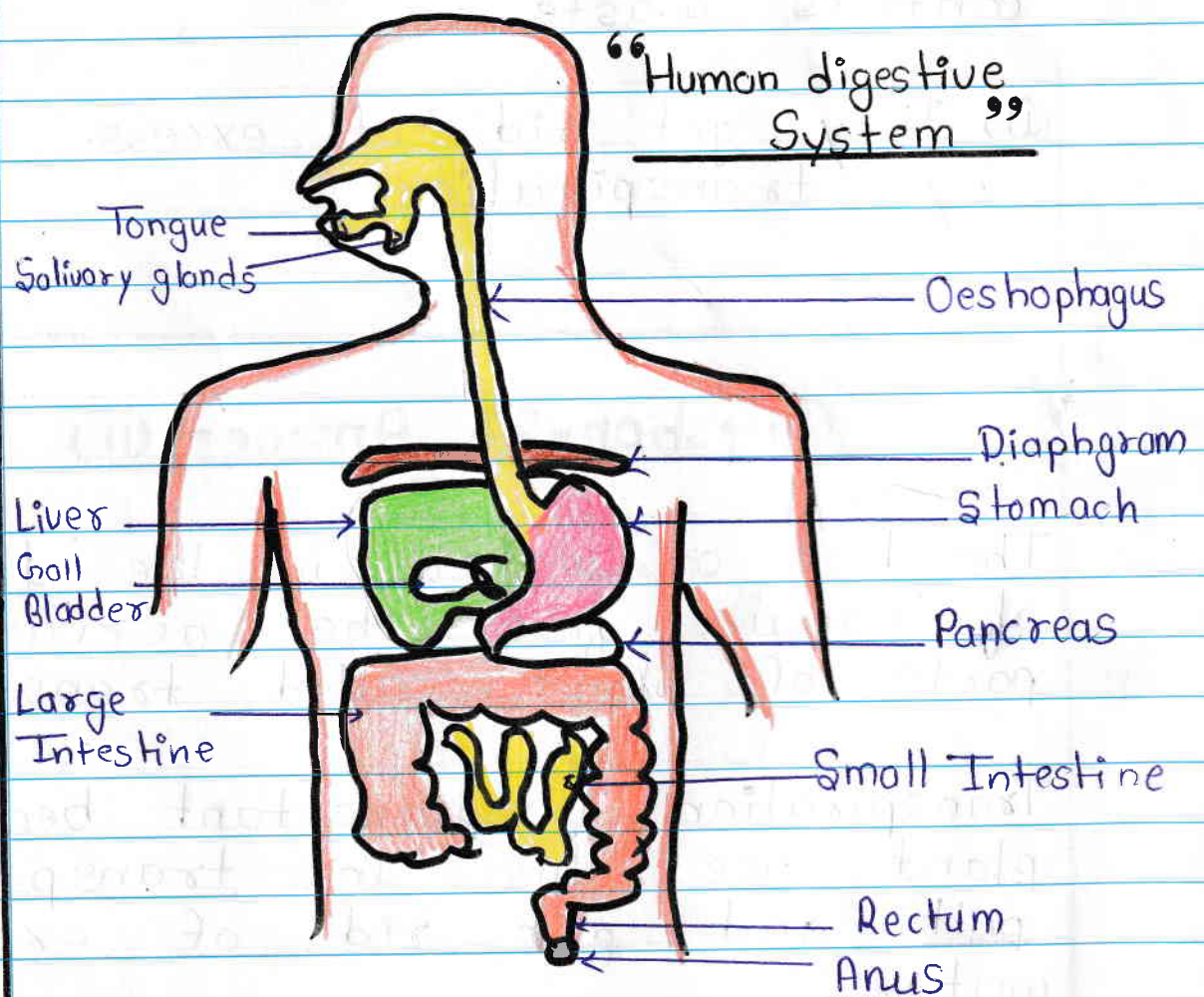
### Question-27 Answer (iii)

- Plants produce oxygen and water as waste product in photosynthesis.

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- Plants produce  $\text{CO}_2$  as a waste product during respiration

## Question - 24 Answer



### Work of Enzymes :

Enzymes in the digestive system break the complex and large molecules of food into simple and small molecules. Like: Pepsin, Lipase etc.