

ANSWER NO 3

PART D

DENGUE FEVER:

Dengue fever is the onset of high fever due to the bite of the infectious mosquito. The virus attacks the lymphocytes and monocytes in the body which result in the onset of fever in body.

Common Symptoms:

- (i) Fever
- (ii) Chills
- (iii) Body pain
- (iv) Loss of appetite.

VECTOR RESPONSIBLE FOR ITS TRANSMISSION:

Dengue fever is caused by dengue virus. The vector responsible for its transmission is mosquito. Through the following steps the humans get affected by a dengue virus.

- (i) A healthy person gets infected by the mosquito infected by dengue virus.
- (ii) Dengue virus reaches the human body and start the multiplication in the body.
- (iii) The monocytes and lymphocytes present in the body attack to kill the virus in the body.
- (iv) As a result there is an onset of fever in the body called as the dengue fever.

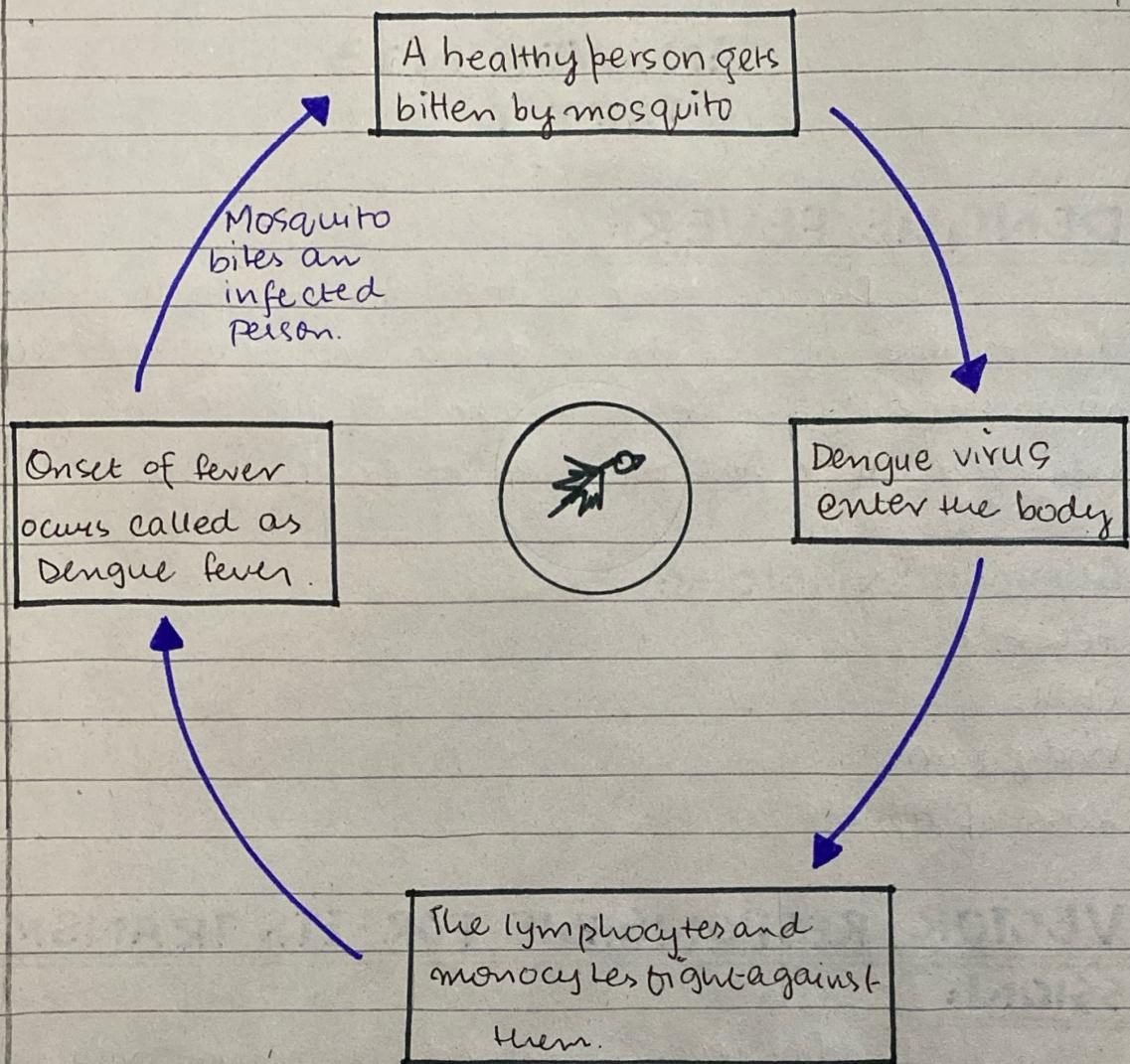


Fig: Life cycle of Dengue Virus

PREVENTIVE MEASURES FOR DENGUE FEVER :

- (i) The only way to prevent oneself from dengue fever is to prevent one by the bite of the mosquito.
- (ii) Use of mosquito repellants can be done to prevent mosquito bite.
- (iii) Avoid going to damp shady places especially at

night.

(iv) Avoid storing water in large containers in shady containers for long time.

ANSWER # 3 PART C

RENEWABLE ENERGY RESOURCES:

Renewable energy resources are the form of resources which cannot end from the earth. Using those resources for the production of energy gives benefit as they are present in ample amount on earth and can be renewed.

EXAMPLE :

The following are example of renewable energy resources.

- Wind
- Light (Solar)
- Water

NON RENEWABLE ENERGY RESOURCES:

Non renewable energy resources are the resources that cannot be renewed and ends after their use. The non renewable energy resources are usually present under the surface of the earth.

EXAMPLE :

- Coal.
- Oils

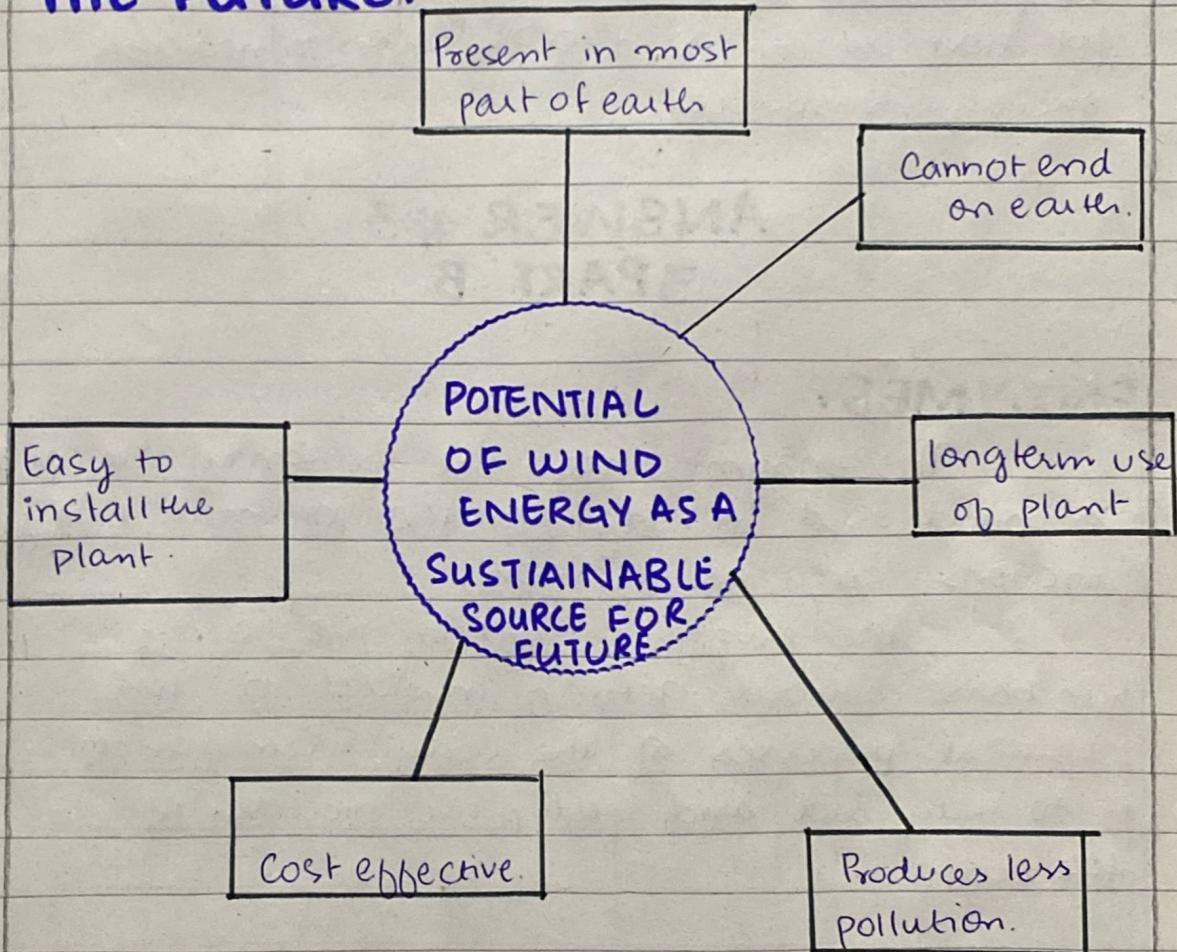
DIFFERENCE BETWEEN RENEWABLE AND NON RENEWABLE ENERGY RESOURCES:

<u>RENEWABLE ENERGY RESOURCES</u>	<u>NON RENEWABLE ENERGY RESOURCES</u>
(i) The renewable energy resources are the resources are present in ample amount on earth.	The non-renewable energy resources are present in the limited amount on earth.
(ii) They can be renewed with time	They cannot be renewed -
(iii) The energy produced by it usually does not produce pollution	They are involved in the production of pollution during energy production process.
(iv) These are found in most part of the earth	They are present in selected parts of the earth.
(v) Examples are wind, solar and water	Examples are coal and oils.

WIND ENERGY:

The energy produced by the wind is called as the wind energy.

POTENTIAL OF WIND ENERGY AS A SUSTAINABLE SOURCE FOR THE FUTURE:



The wind energy holds potential for a sustainable future due to the following reasons.

- (i) The wind energy is present in most part of the earth aiding in the energy production around the earth.

- (ii) Wind energy cannot end ~~off~~ on earth.
- (iii) The plant for the wind energy production is easier to install.
- (iv) The plant has a life long time for the use.
- (v) The production of wind energy through wind is cost effective.
- (vi) The production of wind energy produces less pollution as compared to the non renewable energy resources.

ANSWER #3

3 PART B

ENZYMEs.

The enzymes are the proteinous structural compound used in body for the internal body functions such as digestion.

The enzymes aid in the body functions without getting involved in the chemical processes of the body. Their function is to only aid and speedup the processes in the body.

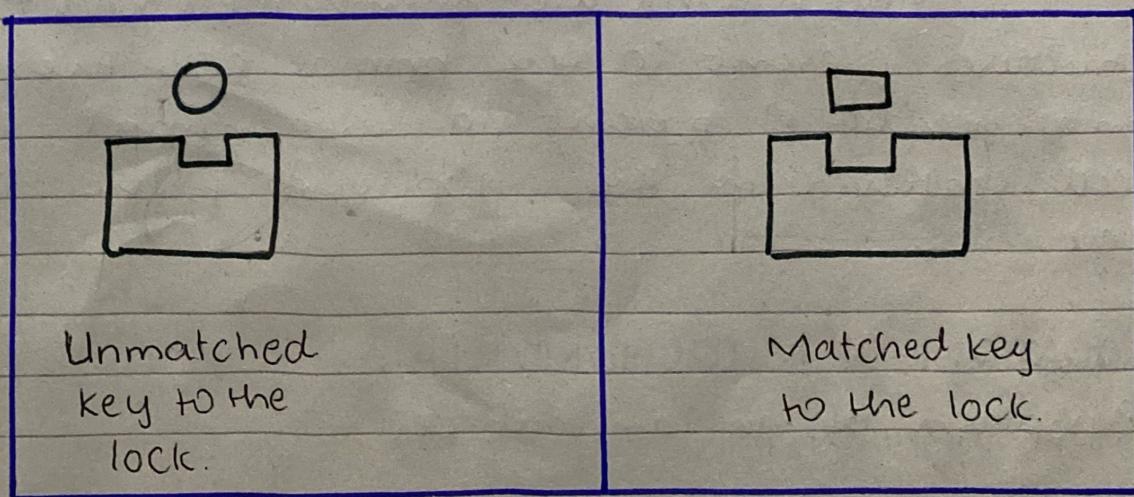
EXAMPLE OF ENZYMEs:

- Amylase
- Peptase
- Synthetase.

LOCK AND KEY MODEL FOR ENZYME ACTION:

Enzyme work as a key for the bodily functions. Each enzyme has its own body process function. The enzyme acts as a key to the body process which acts as a lock.

Each enzyme has its own lock. The specific enzyme gets activated only by the specific key. Therefore the enzymes present in the human body are only responsible for specific body purpose.



FACTORS THAT AFFECT THE ENZYME ACTIVITY :

- **HEAT:**

The heat affect the activity of enzyme. Many enzyme deactivate due to the presence of heat in process.

- **CHEMICALS:**

Many chemicals inactivate the enzymes in the body. For instance salivary amylase is inactivated due to the presence of acids in the stomach.

ANSWER # 3 PART (A)

MITOCHONDRIA :

Mitochondria are membrane bounded structures present in the animal cell. The mitochondria is present in the animal cell scattered in the cytoplasm of the cell.

LOCATION OF MITOCHONDRIA :

Cytoplasm of an animal cell.

FUNCTIONS OF MITOCHONDRIA :

(i) Mitochondria are responsible for the respiration

of the cell.

- (ii) The mitochondria are the ATP producers in the cell.
- (iii) They are called as the power house of the cell.

STRUCTURE OF MITOCHONDRIA:

Mitochondria has a membrane bounded structure in an animal cell.

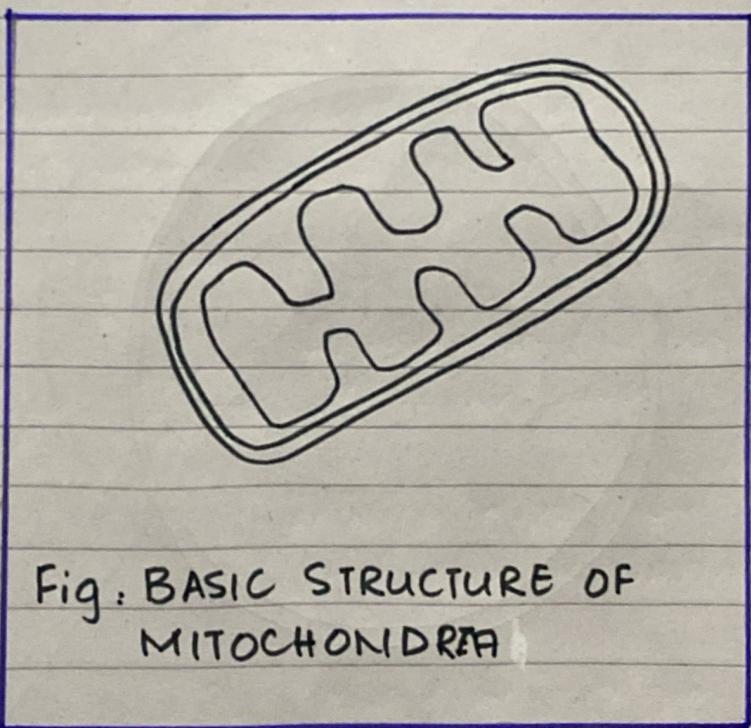


Fig. BASIC STRUCTURE OF
MITOCHONDRIA

RIBOSOMES:

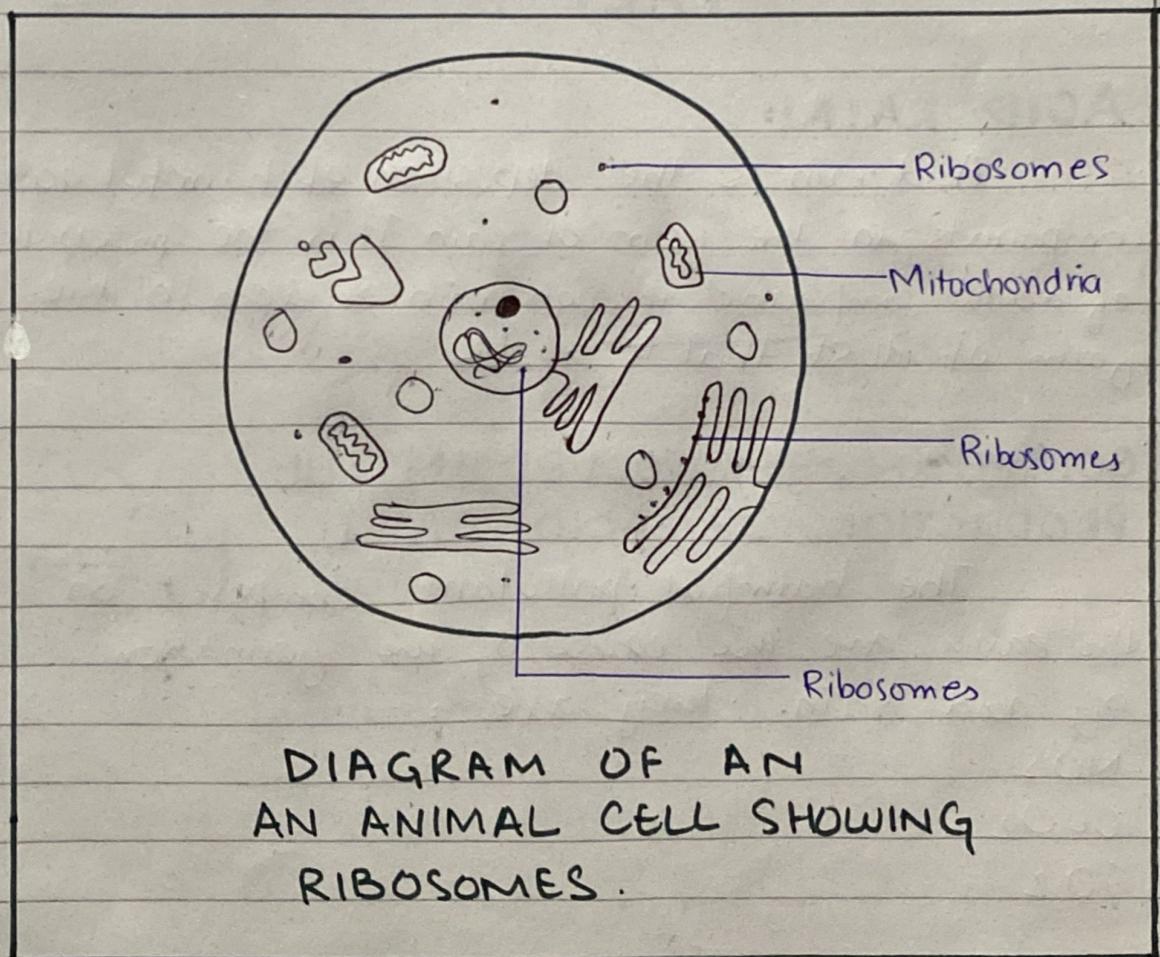
Ribosomes are small granular non membranous structures present in an animal cell.

LOCATION OF RIBOSOMES:

Ribosomes are found scattered in the cytoplasm. They are also found attached to the endoplasmic reticulum and nucleus in an animal cell.

STRUCTURE OF RIBOSOMES:

Ribosomes are non membranous and granular in structure.



MITOCHONDRIA AS THE POWER HOUSE OF THE CELL:

Mitochondria is considered as the

power house of the cell as it is involve in the energy production of the cell. The mitochondria is involved in respiration of the cell which produces ATP in the cell. Hence mitochondria is called as the power house of the cell.

ANSWER NO 4 PART b

ACID RAIN:

Acid rain is the deposition of harmful acidic compounds in the form of rain. It is the precipitation of acidic compound through rain or even in the form of dust that is acidic.

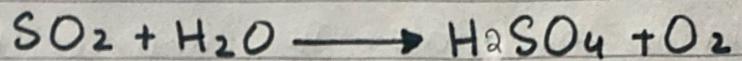
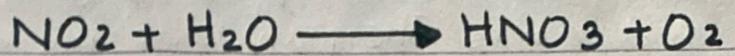
COMPOUNDS INVOLVED IN THE PRODUCTION OF ACID RAIN:

The harmful pollutants composed on the earth are the cause of the formation of acid rain. They are :

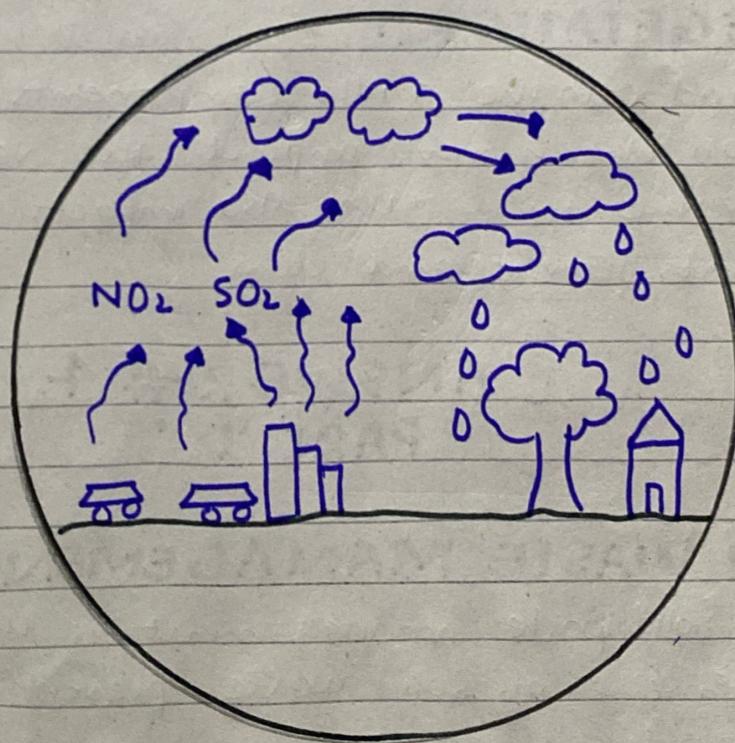
- (i) NO_2
- (ii) ClO_2
- (iii) SO_2

These compounds combine with water to form acid rain.

CHEMICAL REACTIONS INVOLVED IN THE FORMATION OF ACID RAIN.



The oxides of nitrates and sulphates combine with water to form nitric acids and sulphuric acid causing the acid rain.



FORMATION OF ACID
RAIN

HARMFUL EFFECTS OF ACID RAIN ON AQUATIC LIFE:

Acid rain increases the quantity of acid in the oceans and rivers. The planktons present in the aquatic oceans and rivers are died due to the acid in the water. This impacts the complete aquatic life cycle. Moreover the fishes and aquatic plants are also impacted due to the acid rain.

HARMFUL EFFECTS OF ACID RAIN ON VEGETATION:

Due to acid rain the acidic components increase in the soil which more impact the vegetation. Moreover, the acidic rain also impacts the tree plants leaves and stem.

ANSWER # 4 PART 'D'

SOLID WASTE MANAGEMENT:

Solid waste management is the management of solid waste present on the earth produced due to the accumulation of solid waste by humans.

The management of solid waste is necessary in order to keep the earth clean and liveable for the humans.

TYPES OF SOLID WASTE :

- Municipal waste
- Industrial waste
- Landfill waste.
- Electronic waste.

ENVIRONMENTAL HAZARDS ASSOCIATED WITH IMPROPER DISPOSAL OF URBAN WASTE:

Environmental hazards associated with improper disposal of urban waste.

→ Increase in diseases in urban areas.

→ Increase in pollution and smell in urban areas.

→ Impact on nitrogen and oxygen levels.

→ Electronic waste increasing hazards through batteries

INCREASE IN DISEASES IN URBAN AREAS

The improper disposal of urban waste cause the increase in diseases in urban areas such as diarrhea, dengue and malaria fever.

INCREASE IN POLLUTION AND SMELL

The improper disposal also causes population in the urban areas and cause the pungent smell in urban cities which make area hard to live.

IMPACT ON THE NITROGEN AND OXYGEN LEVELS

The improper disposal of urban waste also impact the nitrogen and oxygen levels in atmosphere, resulting in acid rain and breathing issues.

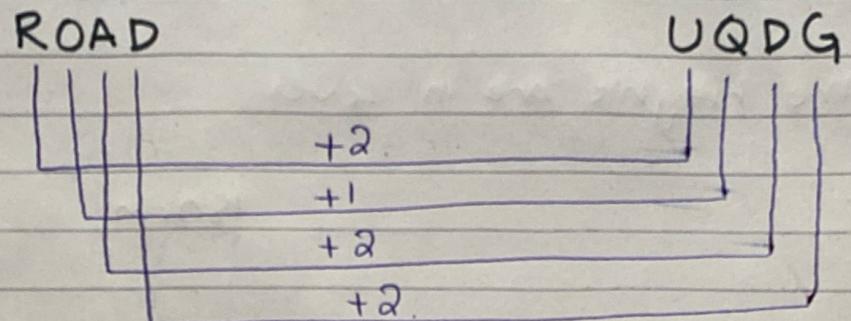
ELECTRONIC WASTE INCREASING HAZARDS THROUGH BATTERIES:

The electronic waste in the urban cities if improperly disposed result in the hazards through batteries as it increases the chances of fire and in the area. Moreover, they also act as a place for the mosquitoes to grow increasing the chances of dengue and malaria fever in the urban cities.

ANSWER # 8

PART A

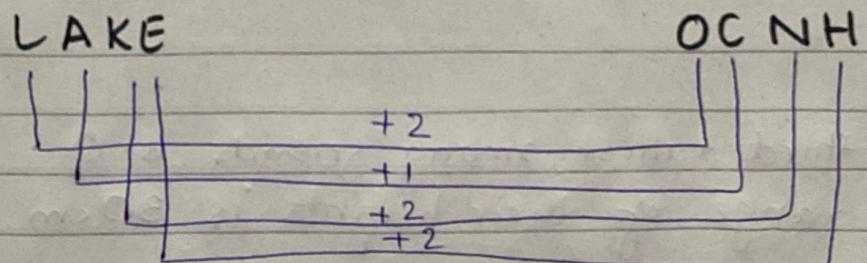
The ROAD is coded as UQDG



Analysis :

The code follows the pattern +2 +1 +2 +2.

So, the LAKE will be coded as.



The code for LAKE is OCNH

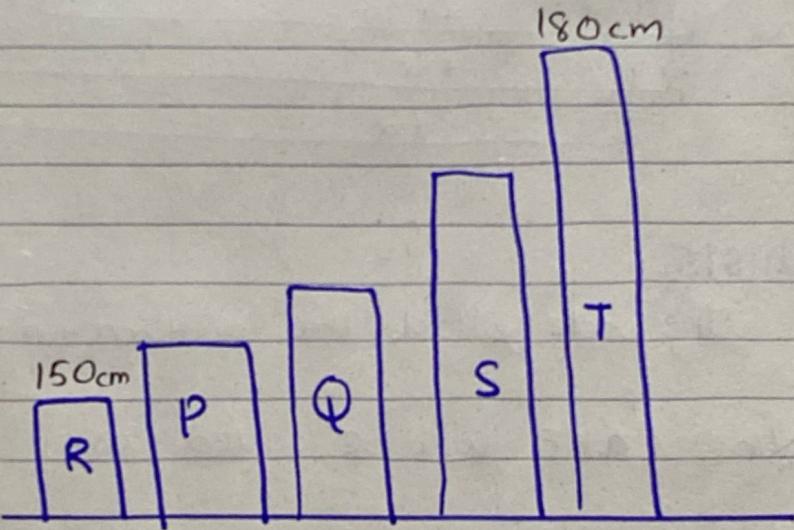
ANSWER #8 PART 'D'

According to the data:

P is shorter than Q but taller than R

and S is shorter than T but taller than Q

So the heights are in series.



So,

The third tallest among friends is Q.

The range of their heights is 30 cm.

ANSWER # 8 PART e

(i) $4, 12, 6, 18, 9, 27, \underline{\quad}$

$$\begin{array}{ccccccc} & +2 & & +3 & & +4 & \\ \overbrace{4, 12} & & \overbrace{6, 18} & & \overbrace{9, 27} & & \underline{\quad} \\ \times 3 & & \times 3 & & \times 3 & & \end{array}$$

So the number next in series is 13.

$4, 12, 18, 9, 27, \underline{13}$

(ii) $1, 2, 6, 24, 120, \underline{\quad}$

$$\begin{array}{ccccc} 1, 2, 6, 24, 120, \underline{\quad} \\ \curvearrowleft \curvearrowleft \curvearrowleft \curvearrowleft \curvearrowleft \\ \times 2 \quad \times 3 \quad \times 4 \quad \times 5 \quad \times 6 \end{array}$$

So the number next in series is 720.

$1, 2, 6, 24, 120, \underline{720}$

ANSWER #7

PART D

Let the ages of father and son be following.

Son $\rightarrow x$

Father $\rightarrow y$.

Sum of ages of son and father at present = 75.
 $x + y = 75$

Ten years ago.

Father was 4 times son age.

So.

$$y = 4x$$

Finding the present age of father and son;

$$y = 4x$$

$$x = \frac{y}{4}$$

$$\text{also } x = 75 - y - 10.$$

Combining both.

$$\frac{y}{4} = 65 - y$$

$$4(65 - y) = y$$

$$260 - 4y = y$$

$$260 = 5y$$

$$y = \frac{260}{5} \Rightarrow 52$$

so the age of the father is 52.

Now the age of son.

$$x + y = 75$$

$$x + 52 = 75$$

$$x = 23$$

Age of father = 52

Age of Son = 23