# Part II

## Section 1

(Q4)

(a)

## Earthquakes:

The temporary driwicking or shaking of land due to released of energy stored in it is known as earthquakes

## Major Earthquakes in Pakistan:

- 5 October 2005
- 26 October 2015

## How Earthquake is generate:

Earthquake is generated due to the movement of tectonic plates. There are total 15 tectonic plates upon which Seven importants are:

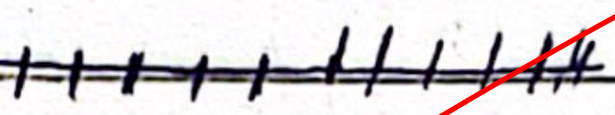
- North American plate
- South American plate
- Pacific plate
- Atlantic plate
- Indo-Australian plate
- Eurasian plate

## Phenomenon beyond Earthquake generation:

Earthquake is mostly generated due to lava extraction. When lava is extracted then earth crust part is unbalance. During balance the tectonic

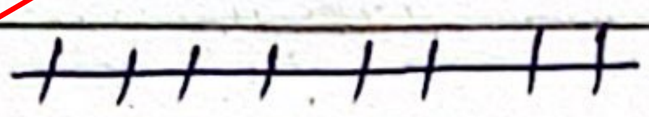
ase moving and fracture line is marked on the surface of earth. Othes source of production is when heavy dense plate slide with small and less densit plate; the small plate/densit plate move upword and enesgy is released from the focus This process is called subducion. These are sesmic waves which produced during these process. Sesmic waves are love waves and Rayleigh waves. Othes way to explain the earthquack is through elastic potential theory.

→ Before earthquake



Atlantic plate Indio-Austrain plate

→ At the start of Earthquake



→ After the earthquake

## Distinguish with Tsunami:=

In tsunami, a large ocean wave is produced due to earthquak, or volucanic exuption in the ocean.

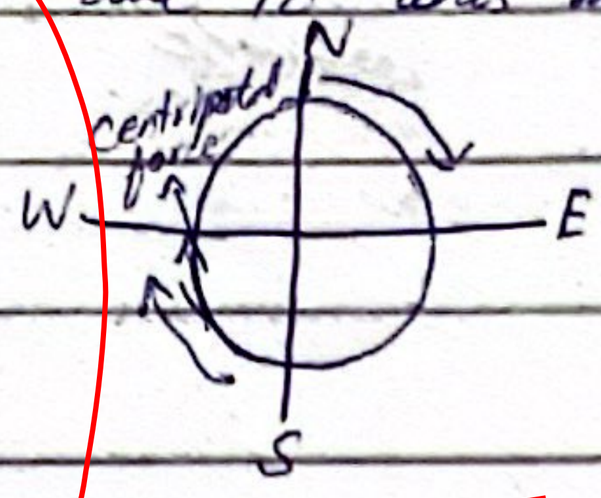
Tsunami is created after the earthquake. And earthquake is generated due to the movement of tectonic plates. Both are connected with the movement of tectonic plate. Moreover, due to

atomic bomb explosion. in the sea, high and strong waves can be generated in the ocean. Both destroyed all things and causes serious economic damages to the earth.

(b)

## Coriolis Force=

When the object is moving right in northern hemisphere and moving left in southern hemisphere then the force that is produced due to this movement is called coriolis force.



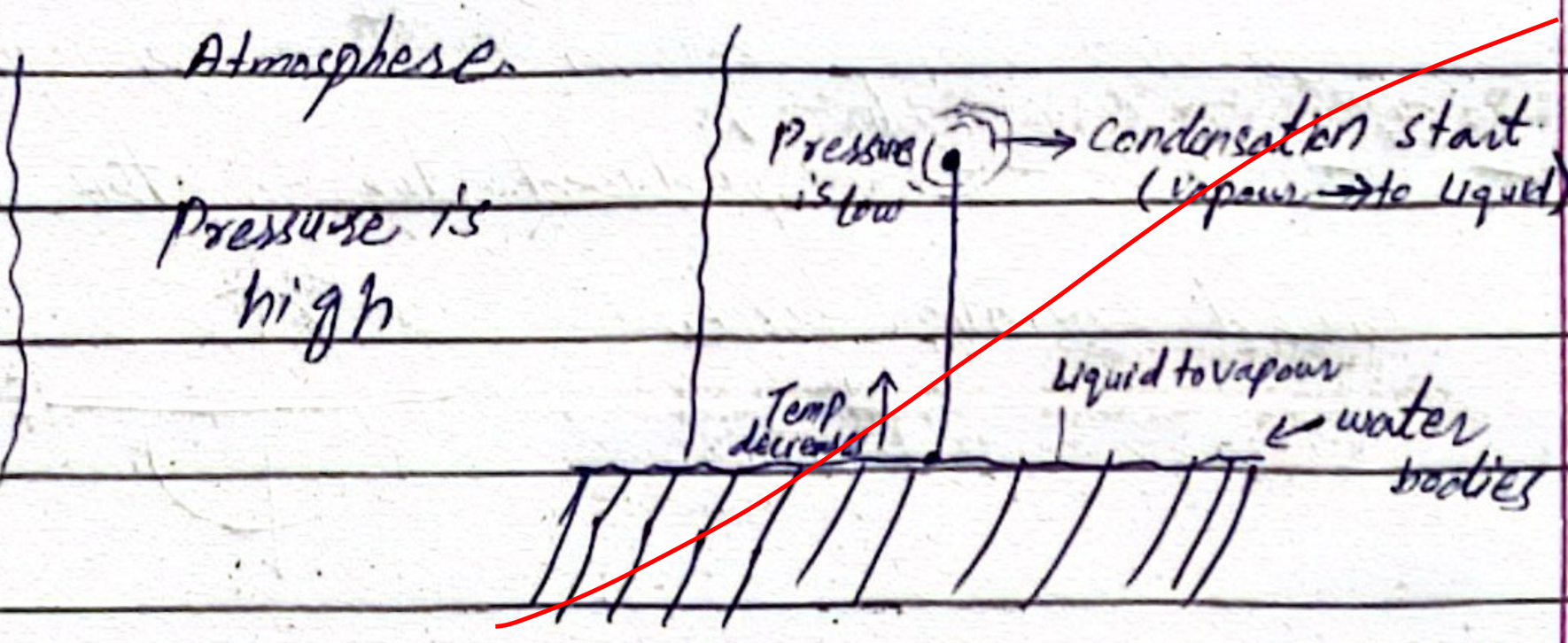

## Hurricanes=

Hurricanes are the form of cyclone. Cyclone is produced when there is pressure difference is created and combined with coriolis force, then strong air circle is produced which is known as cyclone.

## Generation of Hurricane (Cyclone)=

Cyclone is generated when pressure gradient is coupled with coriolis force At the surface of

water bodies, the water drops are moving upword by decreasing temperature. After reaching the point where pressure is became low, condensation process is start. At that point pressure on droplet from the atmosphese is high and itself pressure of droplet is low. Due to difference in Pressure, pressure gradient is produced/generate. It is further coupled with the coriolis force which move in the cycle. form.

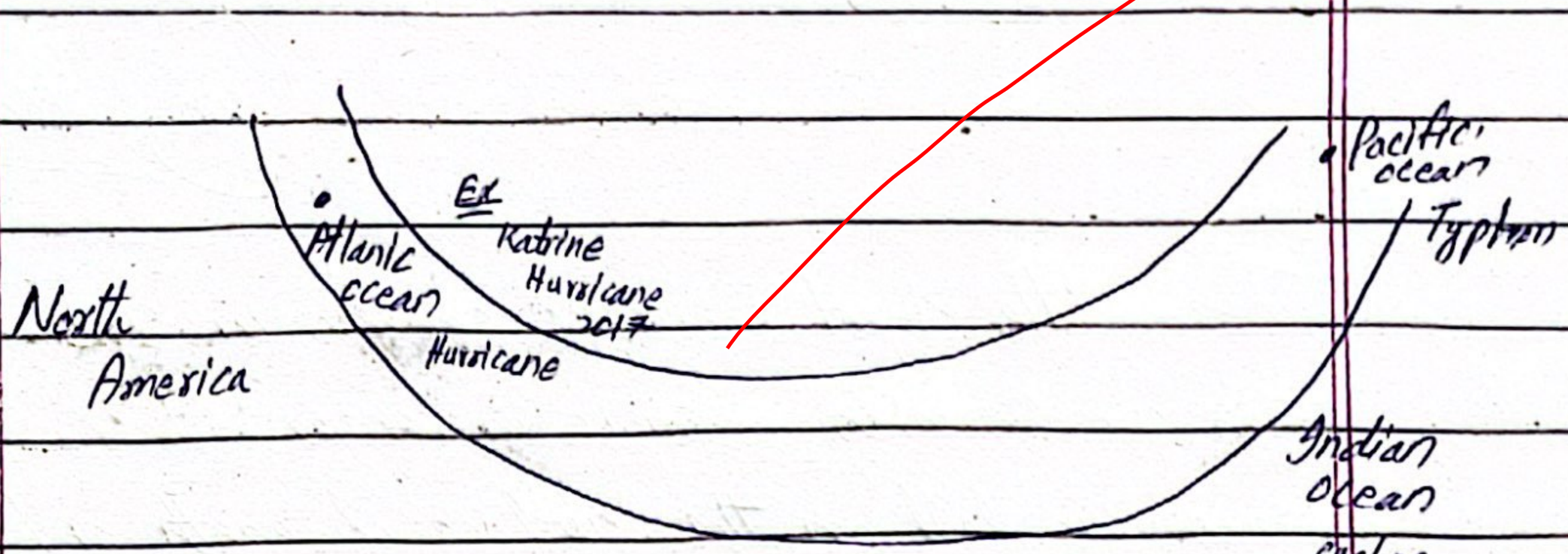



When this pressure difference is coupled with coriolis effect the large whole of cloud is generated in the sky above the ocean.

## Parts of Cyclone (Hurricane):-

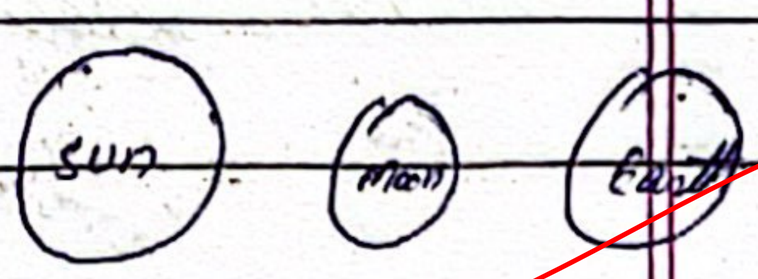
1. **Eye**
   - It is the center region of cyclone
   - In this region the pressure is low.
2. **Eye wall**
   - It is the sides of cyclone
   - It is 45-20km away from center
   - Pressure is high.

## Names of Cyclones



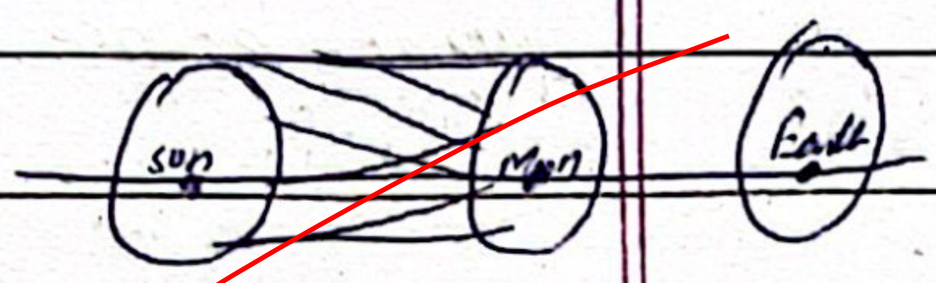

(c)

## Solar Eclipses:




When moon is in between the sun and earth then such eclipses is called solar eclipse. There are three types of solar eclipses:

### (a) Total solar eclipse:




When moon is exactly alined on the same line which having centers of sun and earth, then such eclipse is known as total solar eclipse.

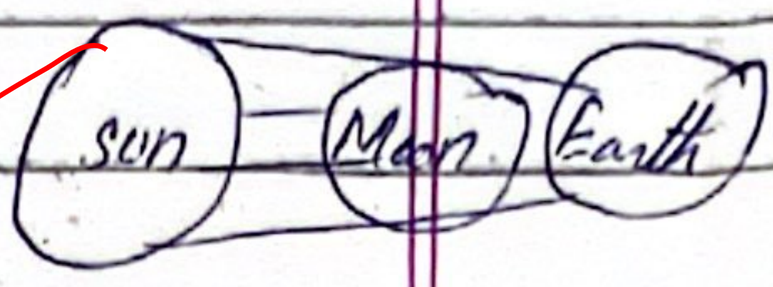
### (b) Partial Solar Eclipse:




When moon is above or below the line joining the centers of sun and earth, then such eclipse

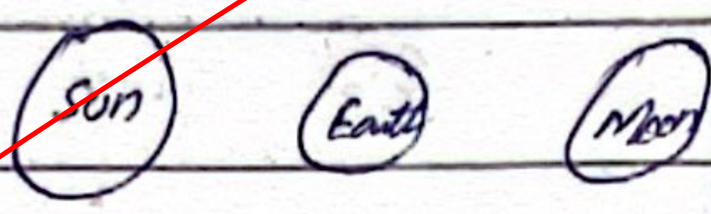
is called the partial solar eclipse.

## (c) Annular Solar Eclipse =




The middle object, moon, is smaller in size then sun. So, when moon is in center but still sun rays fall on the surface of earth and forms belly beats. This eclipse is known as annual solar eclipse.

## Lunar Eclipse

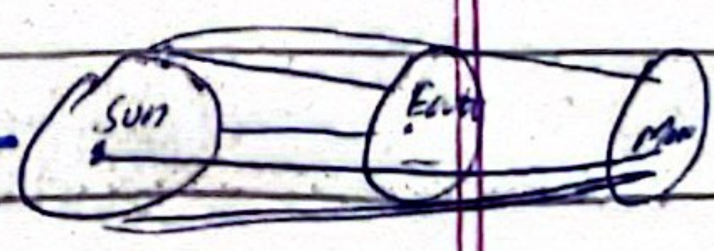



When earth is in between the sun and moon, then such eclipse is known as lunar eclipse.

## (a) Total Lunar eclipse


When earth is exactly alined on the same line which joins the center of sun and moon. Such eclipse is known as total lunar eclipse.

## (b) Partial Lunar Eclipse =




When earth is above or below the line joining the center of sun and moon then such eclipse

is called partial lunar eclipse.

(D)

## Semi-Conductor

The ceramic materials having electrical properties in between conductor and insulator is known as semi-conductor

## Doping:

It is process in which ~~poten~~ electrical energy is used for the movement of charge because charges do not move due to strong effects of other chasing.

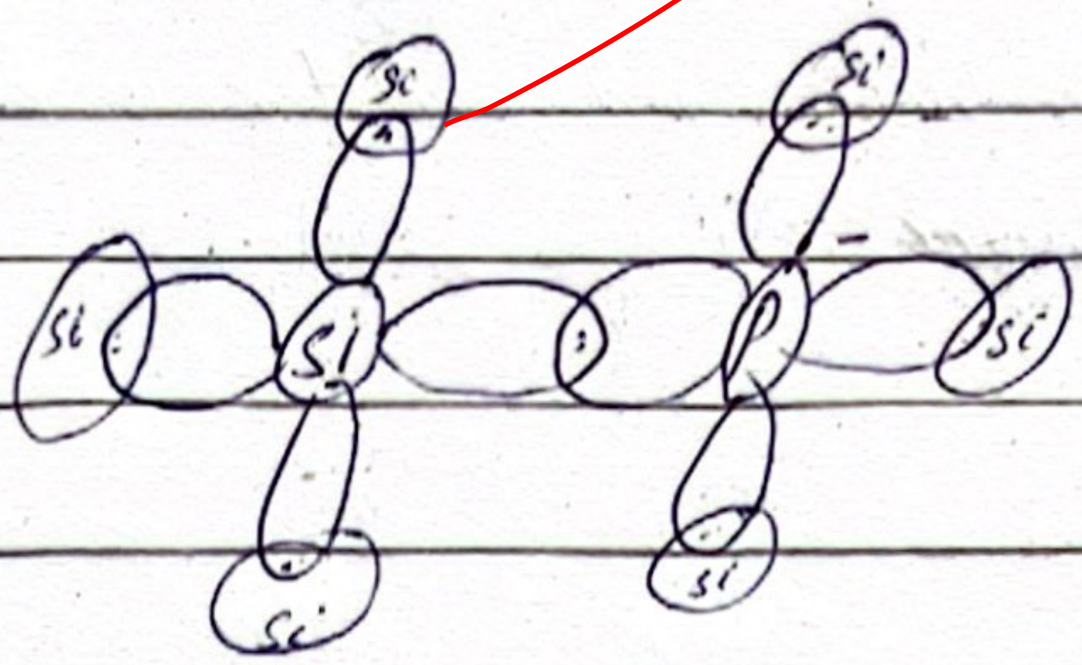
When impurity is added in pure semi-conductor then this process is called doping. It is of two types:

### N-type semi-conductors:

When impurity is added from V of periodic table in the pure semi-conductor then type is known as n-type doping.

## Explanation:-

Phosporus is fifth group element and it has five electrons in its valence shell. After sharing four electrons with silicon, it has still one electron in its valence shell. That's why it has negative charge on it.

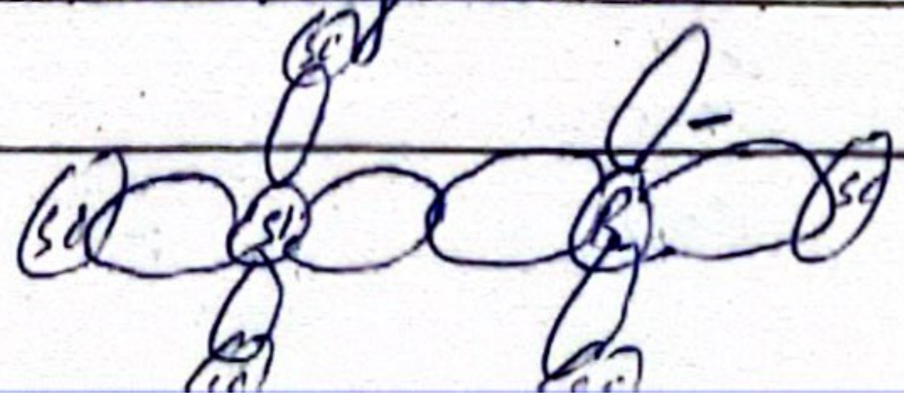



## P-type Semi-conductor:-

When impurity from third group is added in pure semi-conductor, then it is called p-type semi-conductor.

## Explanation:-

Boron is third group element and it has three electrons in its valence shell. When it share its electron with silicon, then one hole is left and due to this reason it has positive charge on it



## Types of Ceramic:-

- These are five types of ceramic on the basic of composition
  ① Silicates ② Oxides ③ Non-Oxides ④ Glass-ceramic
- Other types are: ① Porcelain ② Silicon carbide
  ③ Clay ④ Earthware

## Section II

## Q6

## (b)

Given data:

Mean = 50

Total number = 4 (10, 30, Y, 50).

Find ⇒ Y = ?.

As, Mean = $\frac{\text{Sum of all numbers}}{\text{Total number of items.}}$

$$50 = \frac{10+30+50+Y}{4}$$

$$50 \times 4 = 90 + Y$$

$$200 = 90 + Y$$

$$\Rightarrow Y = 200 - 90$$

$$\boxed{Y = 110}$$

Ans.

(C)

(i) 2, 6, 18, 54, ____

Sol: 2, 6, 18, 54, 162

54
3
162

Explan. $2 \times 3 = 6$

$6 \times 3 = 18$

$18 \times 3 = 54$

$54 \times 3 = 162$

(ii) 3125, 256, ____, 4, 1

Sol: 3125, 256, 27, 4, 1

$1^1 = 1$

$2^2 = 4$

$3^3 = 27$

$5^5 = 3125$

$4^4 = 256$

(a)

let father age = x.

then son age = y

And Current age of son = 30 = y

Five years ago:

Age of father = x − 5

Age of son = 30 − 5

= 25

According to given conditions:

$$(x-5) = 3(25)$$

$$x-5 = 75$$

$$x = 75+5$$

$$\boxed{x = 80 \text{ years}}$$

$$\boxed{\text{So, father's current age is 80 years}}$$

(d)

let two numbers are $x, y$.

According to conditions:

$$xy = 320 \rightarrow (1)$$

$$\frac{x}{y} = \frac{1}{5} \rightarrow (2)$$

From eq. (2).

$$5x = y \rightarrow (3)$$

Put eq (3) in (1)

$$x \times 5x = 320.$$

$$5x^2 = 320$$

$$x^2 = 320/5$$

$$x^2 = 64 \qquad \Rightarrow \sqrt{x^2} = \sqrt{64}$$

$$x = 8$$

They $y = 5(8) = 40.$

To Find = ? $\qquad y^2 = x^2 = ?$

$= (40)^2 - (8)^2 =$

$= 1600 - 64$

$= 1536$ Ans.

## Q7

(a)

Selling Cost of one scootie = RS 96000

20% in 1st Scootie = $96000 \times \frac{20}{100}$

960
20
000
1920X
19200

Profit = Rs19200

Original cost of 1st scootie = 96000 + 19200

= £76800

96000
19200
76800
96000

Prof

20% loss in 2nd scootie = -19200

Since, profet is 19200 and loss is also 19200. So she has no profit and no loss.

0% Profit =

(b)

| Men | Hourse. | Days |
|---|---|---|
| 195 | 10 | 20 |
| x | 13 | 15 |

The relation between men and days is inverse

The relation between men and working hourse is inverse

$$\frac{x}{195} = \frac{10}{13} \times \frac{20}{15}$$

$$x = \frac{195 \times 10 \times 20}{13 \times 15}$$

$$\boxed{x = 200}$$

(c)

Given ⇒ $U = \{a, b, c, \ldots z\}$

$A = \{a, e, i, o, u\}$

To Find:

$A' = ?$

$A' = U - A$

$U - A = \{a, b, c, \ldots z\} - \{a, e, i, o, u\}$

$= \{b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z\}$

(d)

Given: Shape squre pyramid

$Volume = 372 m^3$

$Height = 3Km = 3Kfh \times \frac{100000 cm}{1 Kfh}$

$= .3 \times 10^3 cm$

To Find:

Perimeter of its base = ?

$Volume = \frac{1}{3} Area \times h.$

$372 = \frac{1}{3} \times Area \times 3 \times 10^3 m$

$\frac{372 \times 3}{3 \times 10^3} = Area$

$Area = 93/250 m^2$

$\sqrt{Area} = \sqrt{\frac{93}{250}} m^2$

$Length/Base = 0.609 m$

$Perimeter = 0.609 + 0.609 + 0.609 + 0.609$

$= 2.43 m$

Very good
Perfect answers
Enough headings
Enough length
Fine diagrams
Good for math work

# Part II

## Section 1

## Q2

(a)

### COP-28=

Conference of Parties-28 held in UAE in November 30 to Decepmber 12, 2023. During these days lot of meeting and seminars were held and some key decision is taken. The important key issue that is discussed in this meeting is Activation of "Loss and Damage fond".

### Collection of Funds=

About $ 700 million dollars have collected in which Italy and France contribute $ 100 million each. USA contributes $ 175 million, UK and UAE contributes $ 100 million dollar each. According to UNSC Report about 240 to 350 Billions dollar will be need to mitigate the consequences that valunerable faced due to climate crisis. Collected money is not enough to mitigate the consequences.

### Distribution and Handling of Money=

The main conflit is how to utilized this money and which institutions will perform this. South Asian and African countries want to build new institutions, but USA, EU and UK support WB for it. Cussently, World Bank is performing and after next meeting new institution will be build for this purpose.

## Work for Mitigating the Fuel Burning =

UAE along with other countries agree to reduce the burning of fossil fuel and promote the renewable energy. More than 100+ countries agreed and committed under the UNCCC Councilship.

## Work on capacity building, Resources Mobilization and Institutional Reforms.

Main focus on capacity building by adapting sustainable process. Similarly, developed countries ensure that source are mobilization towards the vulnerable countries and using these, Under-develop countries reforms their institutions. Pakistan is facing serious tribule due to climate issues. As per Gesman watchdop Pakistan is 8th most vulnerable country that faces climate crisis.

## Conclusion:

The main process is to select the most valnerable countries and provide more sources to these countries. Other then, the agreement between countries to mitigate the use of oil is essential.

(b)

## Solid Waste Management:

The authority which is specially designed to perform the work starting from collection of wastes to the disposal of wastes is controlled through strategy which is known as solid waste mangement.

## Characteristics of Solid Waste Management:

These are some characteristics of SWM.

1. **Collection Team:** A strong and experienced collection team along with small and large vehicles are required. This process is expensive but many advantages can be obtained

2. **Collection Point:** The collection point must be at the center of city. Make sure that

there is no college, hospital within radius of 6Km from collection point.

## 3. Separation of waste=

At collection point the separation pross is performed. Plastic waste etc can be solved and other waste is either dump or decompose according to suitable conditions

## Methods

## Open damping=

It is technique in which waste is damped. It is used in old day but not practiced in these days because of air and land pollution. Secondly, open damping is hazardous and damge the land along with unter process.

## Composting=

In this organic waste is composting and obtained product which is known as compositive is used for the agriculture purpose as a fertilizer.

## Incinerated= Incineration

It is mostly used for household waste and hospital waste. Organic waste is used in it and burn in incinreated.

Minimum temperature required is 160 to 300°C

**Land Filling:-**

It is also used to decompe the waste. But, it has a problem that it contaminate the underground water. In these day, governments not allowed this technique due to environment issues.

## (C)

## Balance Diet

It is the diet which contains the right quantity of essential nurtrient. The essential nutrients are:

1. Carbohydrates 2. Fats 3. Proteins
4. Vetimins 5. Water 6. Minerals

**Carbohydrates:-** These are essential for the healthy working system, heart, kidney and muscles system. It fulfill the needs of energy. Main sources of carbohydrates are Wheat, milks, vegetable, fruits.

**Proteins:-** Essential for musles building, healing process and also fulfill the energy needs

Main sources of proteins are milk, eggs, meat etc.

**Fats=** They are source of energy and provides fat soluble vitamins (A, D, E, K). Main sources of fats are milk, meat, oil, fish etc.

**Minerals=**

Minerals are essential for the bones, hearts, Kidneys, strong healing process, teeth etc. Main minerals are Calcium, potassium, copper, Iron etc. Sources of minerals are: Milks, diet, vegetables, fruits, salt, sea food etc.

**Vitamins=** They are organic substance which fulfill the needs of human body. Main vitamins are A, D, E, K. Lack of vitamins A causes night blindness. Similarly lack of vitamin D leads to rickets. Sources of the vitamins are fruits, meat, eggs, milk, dry fruits.

**Water=** Most essential in balance diet. It is required to maintain body temperature. It is required to lubricate the body parts and fulfill the needs of body

(d)

## Renewable Energy:-

The energy which can be formed from renewable resources and which can be environmental friendly is known as renewable energy Example solar energy, wind energy etc.

## Projects under CPEC:-

About 2000 MW energy is produced after the completion of projects. Main projects are:

## Civil Nuclear Projects:-

K2 ⇒ 1100 MW completed and operation
K3 ⇒ 1100 MW Completed and operation
C5 ⇒ 1100 MW Under installation.

## Wind Projects

About 3000 MW energy is produced from these projects.
Coastal belt of Sindh (Jampes).
Boarding Area of Iran-Balochistan (Das-Bandees)

## Solar Projects =

Many small and large projects are already completed like Quaid-e-Azam Solar Park Bahawalpur. Similarly about 600MW solar project is under the completion in Gwadar.

## Conclusion =

According to Energy Policy 2030 more than 80% of energy will be obtaine from renewable energy. Many projects are completed and some are under-working.