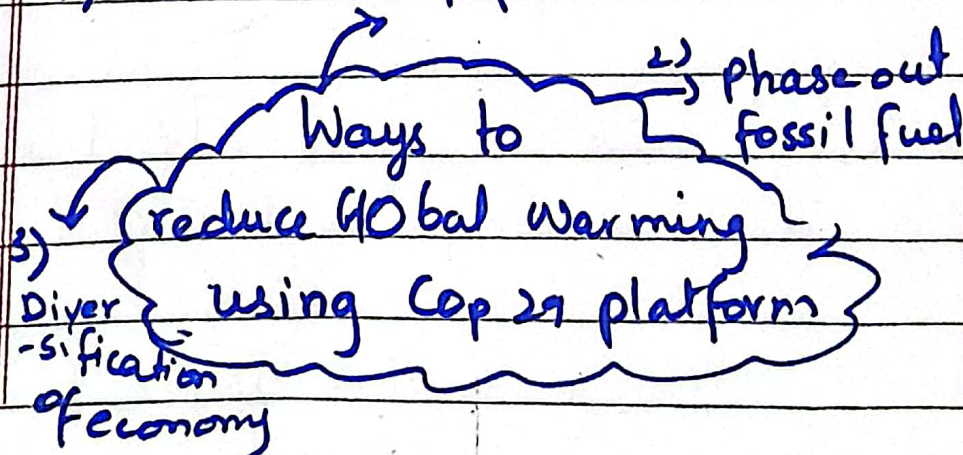


Q# 2:

a) Global Warming:

Ans: Global warming is an increase in Earth's temperature due to ~~great~~ increase in greenhouse gases (CO_2 , CH_4 , NO_x , SO_x). Many international efforts are made to combat the impending loom of global warming including COP or Conference of Parties events. The upcoming COP29 at Baku, Azerbaijan in November 2024 can be utilized to mitigate the impact of Global warming on developing nations:

1) Allocation of funds



1) Funds Allocation:

The developed nations like China, USA and India, ^{& UAE} who are major contributors of greenhouse gases should pay compensation money to least developed or developing countries like Pakistan and Africa so they can become:

- ✓ More climate resilient
- ✓ Build green energy projects.

The Loss and Damage

Fund at Cop29 should now be mobilized.

2) Phase out from fossil fuel:

The developed nations who are heavily reliant on fossil fuel export as well as on fossil fuels for their economy should deploy other methods of economic growth. This includes

Y: _____

DATE: _____

Ways to phase out from fossil fuel Based Economy

2) Binding decisions at Cop-29.
• The decisions should be binding and should impose penalties.

1) Diversification of Economy:

- Developing skill based economy such as It skills.
- Building economy on tourism

b) Functions of Arteries, Veins and Capillaries

Arteries:	Veins
Carry oxygenated blood from heart ^{Lungs} to other body parts	Carry deoxygenated blood from heart ^{Lungs} to heart

Arteries

- Carry nutrients to body organs
- Carry oxygenated blood to body
- Pulmonary artery carries deoxygenated blood from heart to lungs

Veins

- Carry deoxygenated blood from body organs to lungs.
- Pulmonary vein carries oxygenated blood from lungs to heart.

Capillaries

- Smallest blood vessels
- Exchange of gases and nutrients ^{b/w} from blood and lungs
- In lungs: Release CO_2 in lungs and absorb O_2 .
- In kidneys: Release toxins into ~~the~~ Bowman's capsule by forming ~~of~~ a Glomerulus.

C. Chemical Bonds.

Atoms form chemical bonds to attain stability or a stable state. They attain this stability by either acquiring an electron or giving up the extra electron/s. This giving and attaining is done in two ways:

Ionic Bonds

Ionic bonds are formed when one ~~atom~~ atom loses (completely) or gains (completely) another atom's electron/s.

For example: NaCl

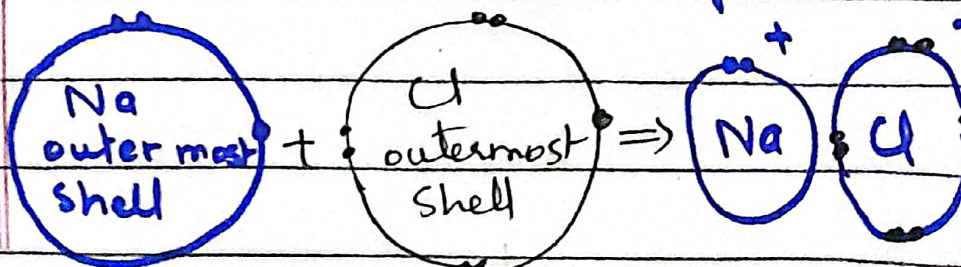
Covalent Bonds

When no complete transfer of electron occurs but atoms shared their outermost electrons to form a stable

Structure.

$\text{Na}^+ \text{Cl}^-$

Ionic Bond Example:



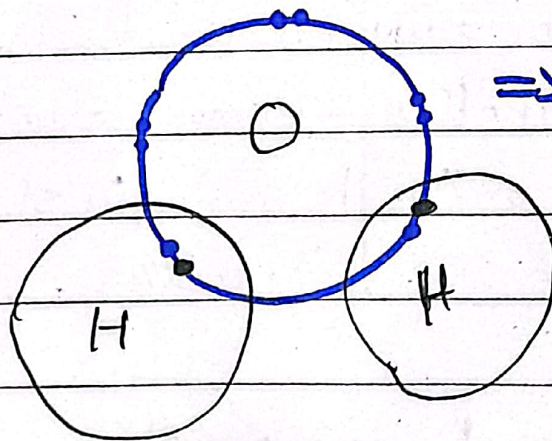
⇒ Sodium gave up one of its electrons to Chlorine to attain an outermost shell of 2 electrons which is stable.

⇒ Chlorine gained one electron of Sodium to form an outermost shell of 8 which is stable

Hence Sodium (Na) acquired a positive symbol and chlorine a negative (-) one.

Covalent Bond Example: Water H_2O

(Outermost shells only)



⇒ Covalent Structure

⇒ Oxygen needs 2 electrons to complete its outermost structure while hydrogen needs one.

d) Conductors:

- Conductors are elements which allow complete transmission of electricity.

Example: Group I metals, steel wires

Semi-Conductors:

- Semi-conductors are partial conductors of electricity.

Examples include

Copper, Aluminium

(Transition metals)

such as LED, copper wires.

Metals

- Metals are highly reactive group I and group II elements in periodic table for example Sodium, bottle cans

Plastics

- Plastics are complete non-conductors of electricity. They include shoppers plastic bottles etc

Ceramics: They are non-reactive materials formed by intense heat.

They are non-resistant, non-corrosive material. Plates, Crockery, Pottery.

eg. examples.

Q#5: Definition ^(AI)

Artificial Intelligence is a system based on algorithms, data processing and modeling.

These Algorithms, Data and Modeling/training AI models enables AI to process vast amounts of data within a few seconds.

"These things can become more intelligent than us and take control", this concern was expressed by God father of AI Geoffrey.

Risks and outsmarting Humans.

- ✓ AI depends on humans to feed them information and are dependant on humans for their malfunctions. Recently, Chatgpt experienced a malfunction and was unavailable until humans corrected the issue. Hence, a technology

dependant on humans cannot outsmart humans.

Devoid of emotional element and reasoning, AI cannot deal with complex and dynamic real world problems which can only be solved by a human mind with emotions, judgement and rationality. AI relies on data already present but humans mind processes dynamic and new information everyday.

by Rock formation:

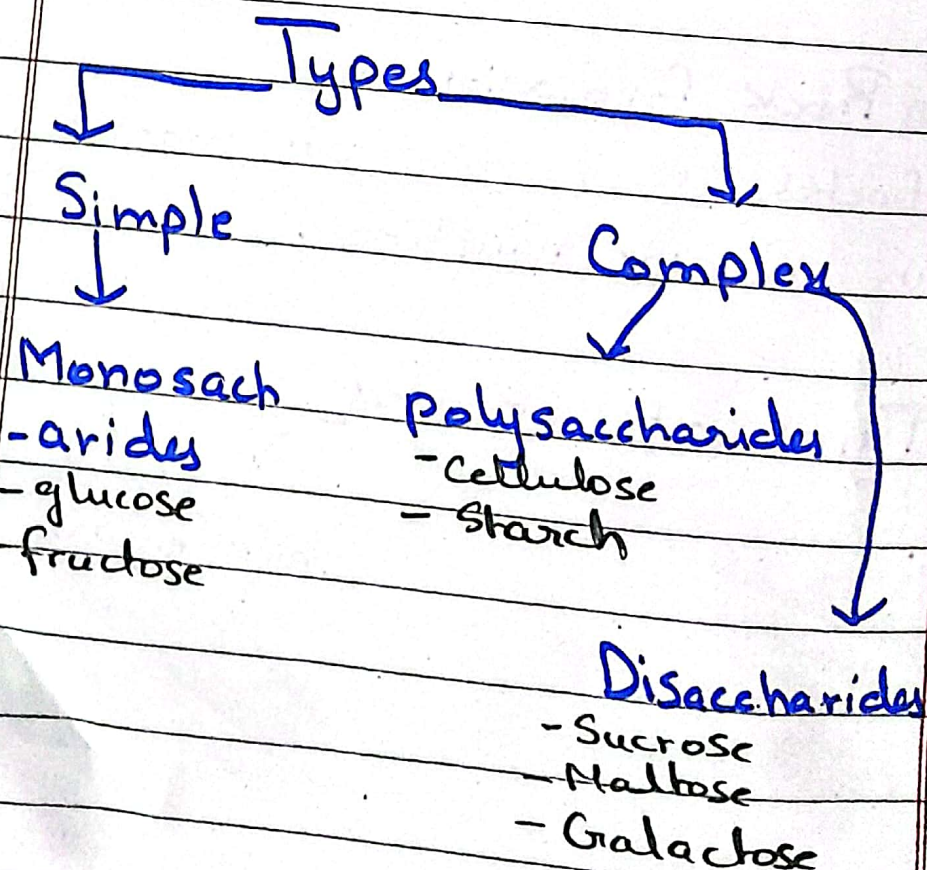
Rocks are formed by magma in volcanic eruptions.

Types of Rocks

↓
Sedimentary

c) What are Carbohydrates:

- ↳ They are the main source of energy for body.
- ↳ Brain cannot function without carbohydrates and low carbohydrates (hypo-glycemia) can result in **coma**.
- ↳ Hyperglycemia (high carbohydrate concentration in blood) ~~causes~~ is seen in **Diabetes**.



DAY: _____

DATE: _____

↳ They are divided into simple sugars and complex ones.

Simple Carbohydrates:

They are the simplest form of carbohydrates and include ~~stc~~ glucose and fructose and have a formula $C_6H_{12}O_6$.

Complex Carbohydrates:

↳ Polysaccharides: They are made up of multiple **disaccharides**.

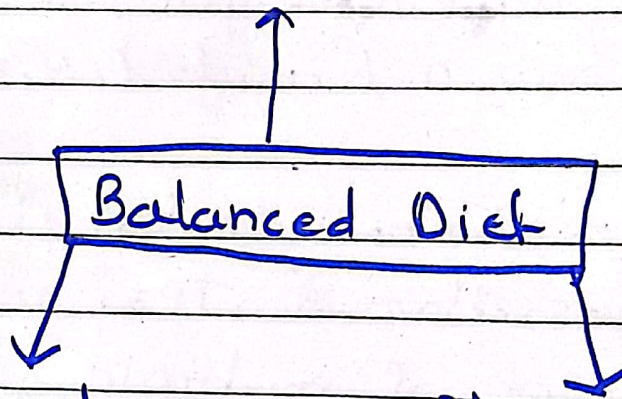
↳ Disaccharides: They are made up of 2 simple sugars combined together in a reaction known as **condensation**

For example sucrose is made up of 1 glucose and 1 fructose molecule.

Q5# d.: It can be followed using My Plate method of "My Pyramid"

1) Disease Prevention

- prevents:
- ✓ CVD
 - ✓ Diabetes
 - ✓ Osteoporosis
 - ✓ Anemia



2) Maternal and Child Health:

- ✓ Brain development of child
- ✓ Reduces maternal and child mortality

3) Beauty:

- ✓ Reduces obesity
- ✓ Healthy skin, hair
- ✓ reverses ageing

1) Disease Prevention: A diet balanced in carbohydrates, proteins and fats reduces the risk of ~~Heart disease~~ Heart disease

- ✓ Heart disease: caused by

excessive fat intake.

✓ Diabetes: A balanced approach towards "carbohydrate" intake can minimize diabetes.

✓ Anemia: Balanced intake of protein from animal and plant sources ensures Iron uptake.

2) Maternal Health:

• Adequate diet in pregnancy ensures adequate Brain development of the child (B₉) and reduced chances of maternal and infant mortality.

3) Beauty:

Reduced obesity and a diet rich in vitamins can ensure reversed ageing, healthy skin (vit. E), healthy hair & shiny hair (Iron & B complex) enhancing one's outlook.

Section II

Q6:

a) % Increase in total
village population in
one decade =

By Direct proportion since
the years and population
increase are directly proportion

-al:

~~Population~~
Before Decade?
~~Population~~

Population = %

$$\begin{array}{ccc} 18000 & \div & 100\% \\ 22500 & \div & x\% \end{array}$$

$$\frac{18000}{18000} x = \frac{22500 \times 100}{18000}$$

$$x = 125\%$$

$$\% \text{ increase} = 100\% - 125\%$$

$$= \boxed{25\%}$$

DAY: _____

DATE: _____

% increase of population
per year in villiage:

Yeare : Increase in %

10 years : 25%

per year : $x\%$

$$\frac{25}{10} = 2.5\%$$

$x = 2.5\%$ increase in
per year population.

b.. Days and units are
directly proportional as more
days means more units.

. Similarly more machines
means more units.

Units & Days & Machines

e) 600 & 9 & 20

x & 12 & 18

Applying direct proportion

Units Days Machines

600 9 20

x 12 ~~20~~ 18

DATE: _____

DATE: _____

OR

M D	U	M
9	600	20
12	x	18

$$12 \times 600 \times 18 = 9 \times x \times 20$$

$$\frac{129600}{180} = \frac{180x}{180}$$

$$\frac{129600}{18} = x$$

$$x = 7200 \text{ units}$$

c) Speed = $\frac{\text{distance in meters}}{\text{time in seconds}}$

e) Speed of car: $\frac{450 \text{ m}}{1 \times 60 \text{ seconds}}$

Since time is in seconds and

1 minute = 60 seconds

$$\text{Speed} = \frac{450}{60} = 9 \text{ m/s}$$

Speed of train:

1 km = 1000 m and distance must be in meters so:

$$65 \text{ km} \times 1000 = 65000 \text{ m}$$

$$\text{Speed} = \frac{65000}{45 \times 60} = \frac{65000}{2700}$$

$$\text{Speed} = 203.3 \text{ m/s}$$

$$\text{rounded off} = 203 \text{ m/s}$$

Ratio of Speed: m/s

Car : Train

$$\boxed{9 : 203}$$

Q#8:

For BROTHER

B R O T H E R

Q D G S N Q A

→ The numbers are presented in a reverse order with each

letter. Alphabet coded in such a way that the code is one

alphabet less. For example B is represented by A on extreme

right while R is represented by Q on extreme left.

Both A and Q are one digit less than B and R respectively.

For Sister:

S will be represented by: R

I " = H

S # = R

T " = S

E " = D

R " = Q

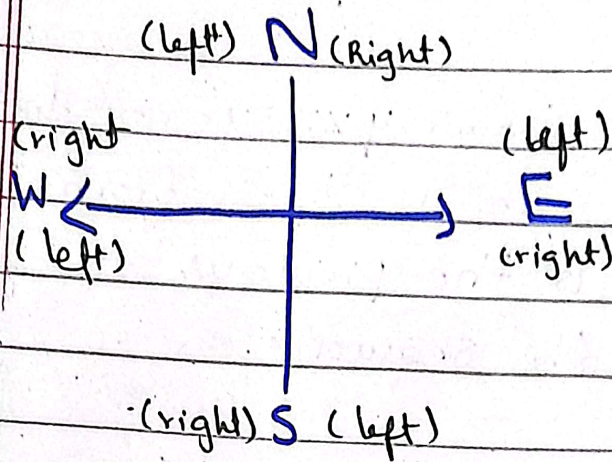
SISTER: RHRSDQ

but by "reversing" the order, the code will be

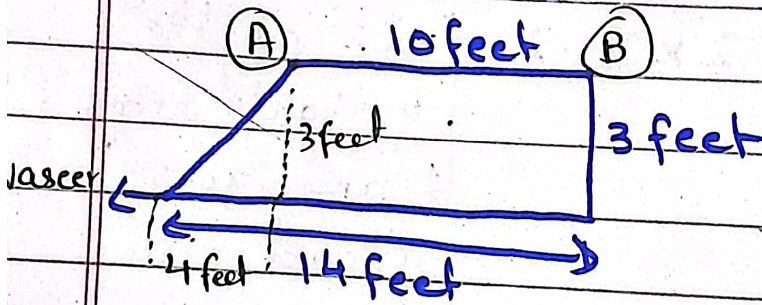
⇒ S I S T E R
Q D S R H R = code

where S will be represented by R on extreme right and the closing digit R will be represented by Q on extreme left side.

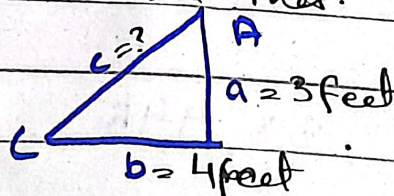
c)



Naseer's route



Suppose Naseer is standing at point C and the distance between point A and point C looks like this:



To find C (c) the formula of Pythagoras theorem is applied:

$$\Rightarrow a^2 + b^2 = c^2$$

$$\Rightarrow 3^2 + 4^2 = c^2 \Rightarrow c^2 = 9 + 16 = 25 \text{ feet}$$

DATE: _____

2) Naseer is 25 feet away from point A:

d) Average Temperature:

°) for first 3 days = 30°C

°) for last 3 days = 35°C

°) for fourth day of week = x

Since The first and last 3 days temperature is in average so they will be considered a single day

Hence

$$= \text{Average} = \frac{x+x+y}{n \times y} =$$

where x = average of 1st three and last 3 days and y = 4th day.

$$\Rightarrow 33^{\circ}\text{C} = \frac{30^{\circ} + 35^{\circ} + y}{3}$$

$$\Rightarrow 99 = 65 + y$$

$$\boxed{y \Rightarrow 34^{\circ}\text{C}}$$