

Part-II - Section-I

Q: 30)

General Instructions

Cyclone

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings
3. Do not use table for comparison and contrast questions.

4. Draw figures/diagram/flowchart where needed.

5. Start new question from fresh page.

6. Write unit of the answer in ability section.

7. Explain mathematical steps and the reasoning for better score.

8. Change colour scheme for references to give them more visibility.

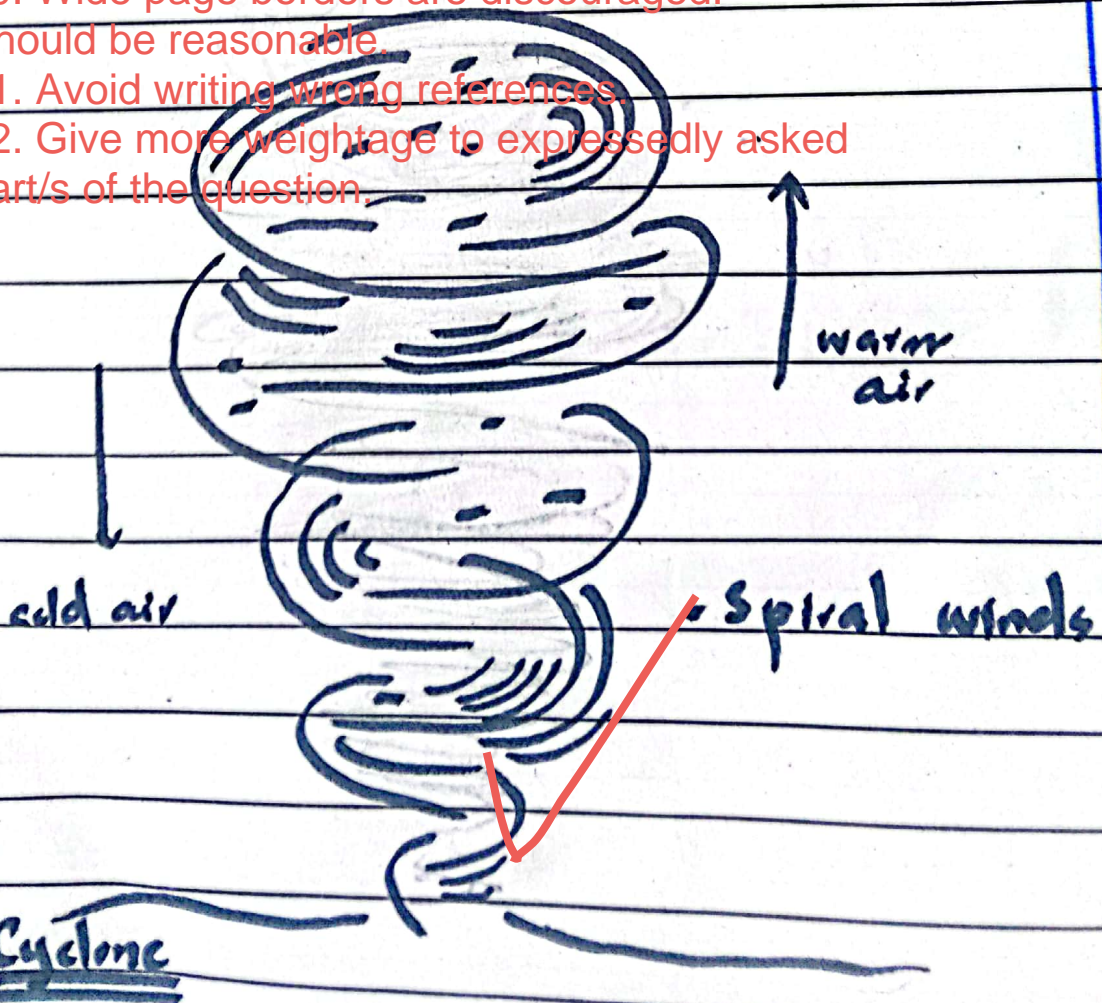
9. Manage time well.

10. Wide page borders are discouraged.

Should be reasonable.

11. Avoid writing wrong references.

12. Give more weightage to expressedly asked part/s of the question.



Causes of cyclone

Following are causes:

- i) Warm air at the surface of sea-level.
- ii) Warm air moves upward.
- iii) Cold air, as a result, goes downward.
- iv) Horizontal circulations of winds begin.
- v) Vertical flow of circulation touches the surface of the earth.

"To sum up, cyclone begins as the circulation of winds."

• see figure: 01

Strongest and destructive part of cyclone

"The eyewall is the

strongest and destructive
part of cyclone."

Typically, the
eyewall is hurricane. It is consisted of
rings of thunderstorms. Resultantly, it
can cause the strongest and destruct
ive storm.

رہنما کریں۔
Q.36 یہاں سے شروع کریں؟

Draw this half double line at the end of each
part and start the next part from new page.
When all 4 parts are answered, draw full
double line.

Q: 3b)

• Earthquake

“Sudden release of elastic energy in the form of seismic waves that causes vibrations in the earth's crust, called earthquake.”

Earthquake is a vibration in the earth's crust. In fact, sudden release of energy generates seismic waves. This is known as the earthquake.



• Earthquake

- Shallow focus - earthquake

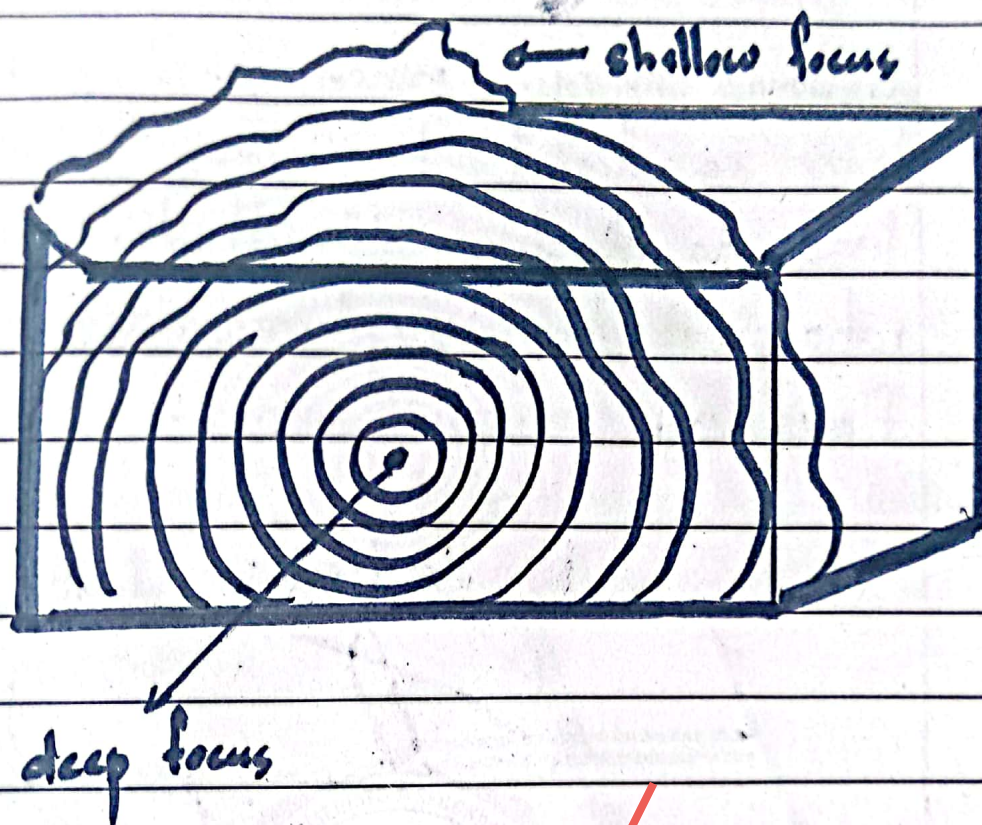
'Shallow focus are crustal earthquakes.'

Shallow focus earthquakes caused by faults. These are also caused by the continental plates. Resultantly, these cause greater damage.

- Deep focus - earthquake

'Deep focus are earthquakes deeper than 70km.'

All earthquakes deeper than 70km are deep focus. These occur within great slabs of lithosphere. These are less common.



Shallow and deep focus - earthquakes

• Causes of earthquake

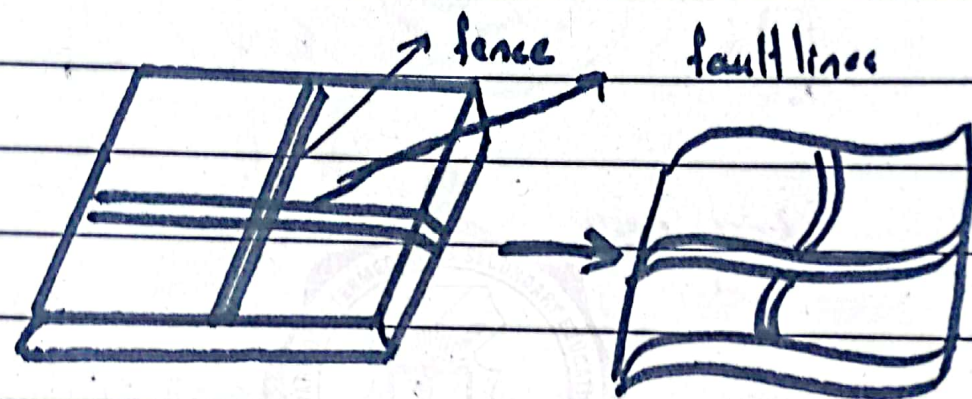
Following are cau-

ses:

i) Elastic Rebound Theory

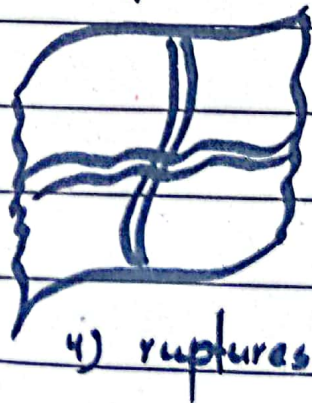
"Energy stored in rocks - lithosphere - causes earthquake."

According to the Elastic Rebound Theory, when energy in lithosphere is stored, it causes force this leads to vibration. Resultantly, these vibrations causes ruptures (and energy flows as seismic waves).

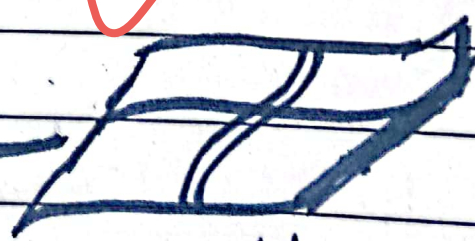


1) original shape

2) deformation



4) ruptures



3) deformed shape

• Elastic Rebound Theory

15)

Movement of tectonic plates

"Gravitational pull causes movement of tectonic

Volcanoes

plates."

Gravitational pull forces movements of lithosphere. In fact, denser plates pushes lighter one. Thus, this results earthquake.

Magnitude of earthquake in Morocco

"A 6.8 of magnitude of earthquake hit Morocco."

On September 8, a violent earthquake of magnitude of 6.8 struck Morocco. This caused lost of more than 2,680 people lives. Hence, it brought much destruction.

Q. 30

• Dengue fever

'Dengue fever is a form of the worst fever.'

Dengue fever is a bad form of fever. It results continual fever and loss of energy. Resultantly, the patient becomes weak.

• Primary causes of dengue fever

'Dengue is caused by *Aedes Aegypti* mosquito.'

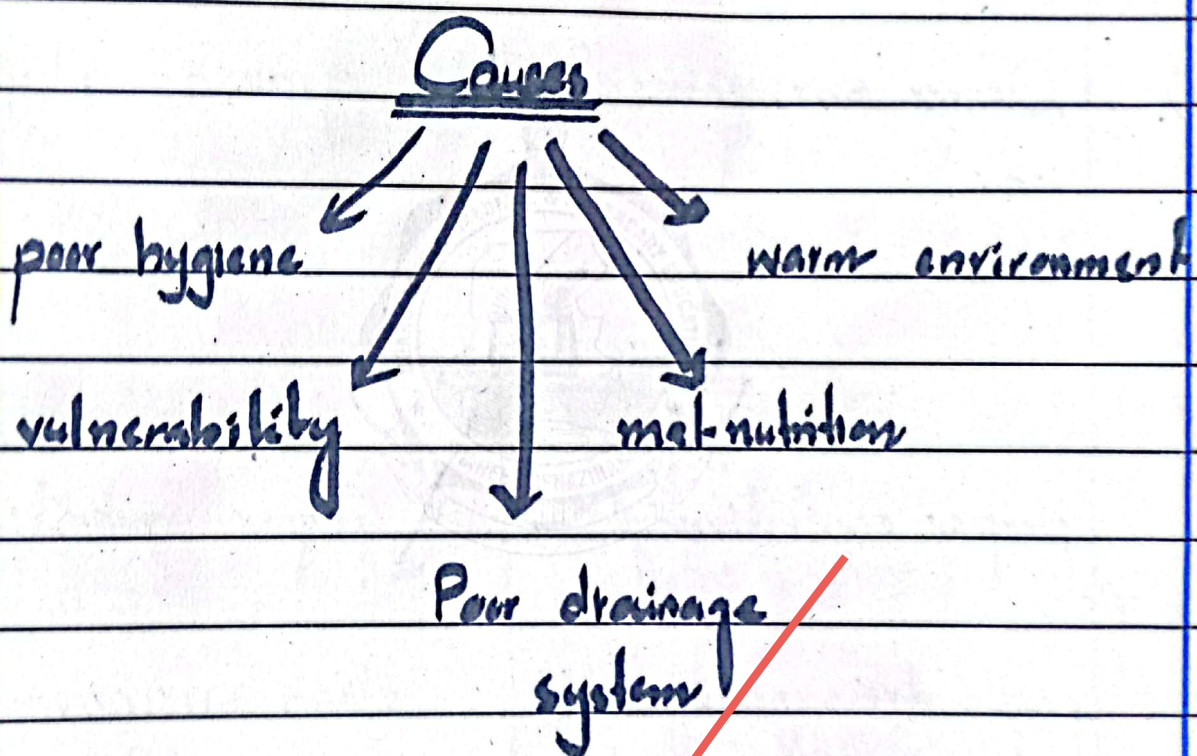
Following are other causes:

- i) Poor hygiene is mainly responsible.
- ii) Warm environment, such as growing hotness leads to a cause of dengue.

iii) Vulnerability of a person as weakness accept quickly.

iv) Mal-nutrition is also one of causes.

v) Poor drainage system provides space to dengue.

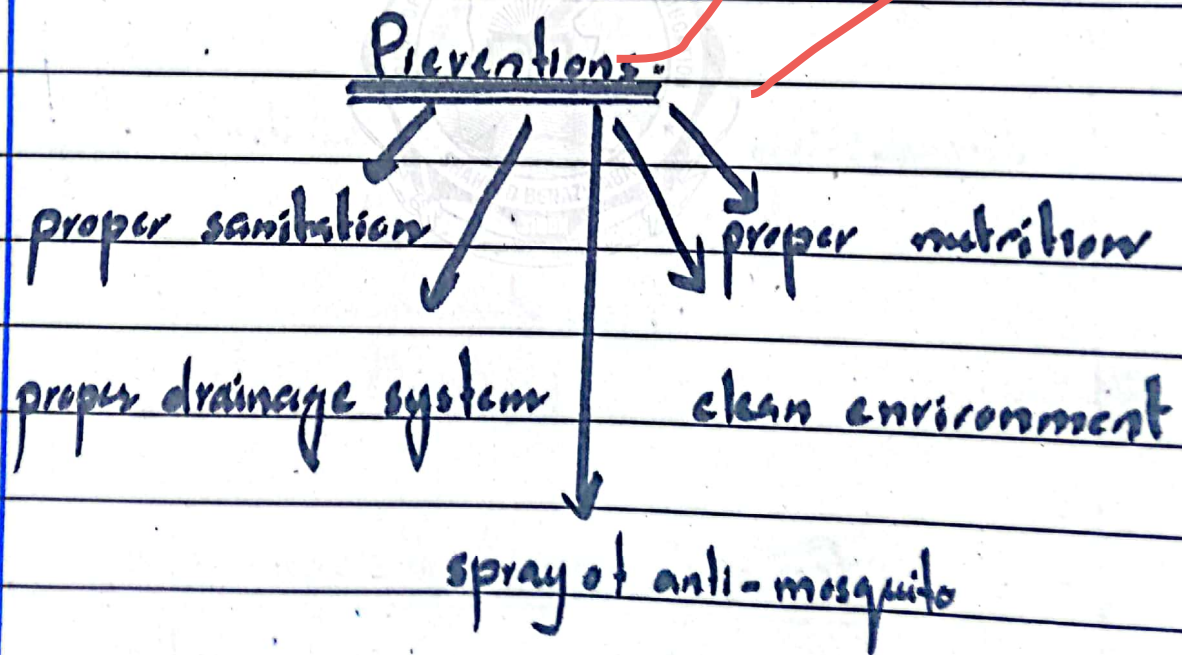


Preventions of dengue-fever

Following are recommended preventions:

i) Proper sanitation of houses and places.

- i) Spray of anti-mosquito to kill mosquito-
oes.
- iii) Proper nutrition increases immunity.
- iv) Proper drainage system in cities and
villages.
- v) Clean environment by growing plantati-
on.

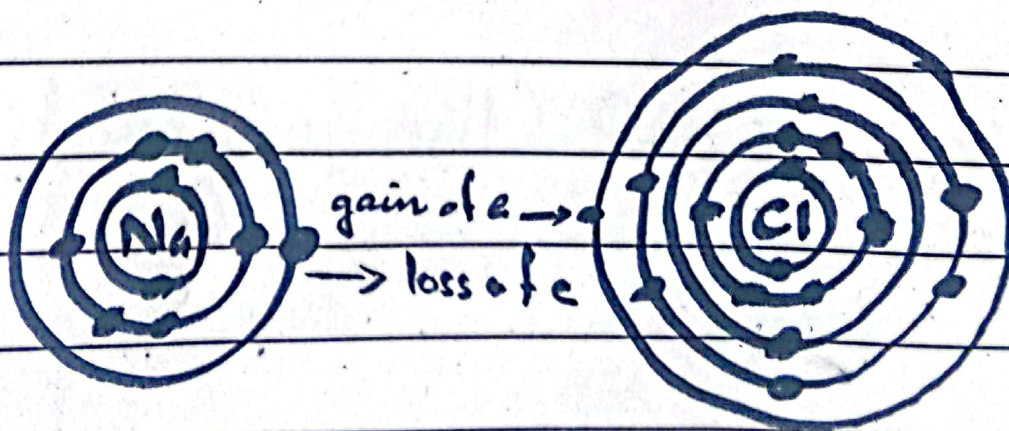
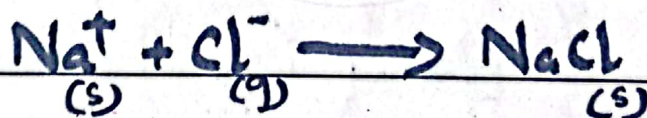
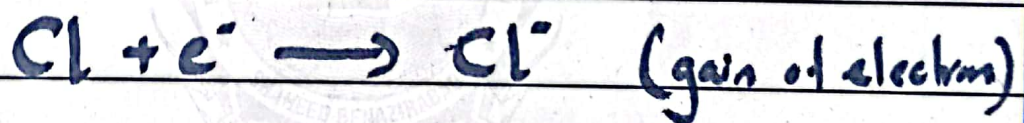
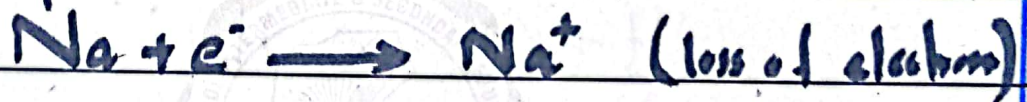


Ionic bond

"Ionic bond is formed by 'loss' and 'gain' of electrons."

A bond that is formed by loss and gain of electrons, known as ionic bond.

For example,



• NaCl (Sodium Chloride)

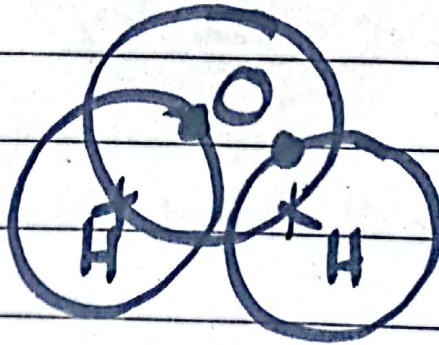
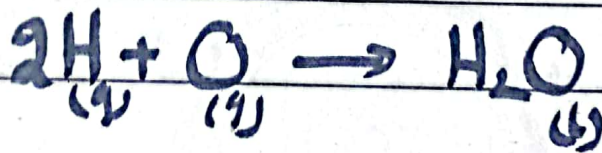
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Covalent bond

'Covalent bond is formed by sharing of electrons.'

A bond that is formed by sharing of electrons, known as covalent bond.

For example:



• H_2O (Hydrogen oxide)

4

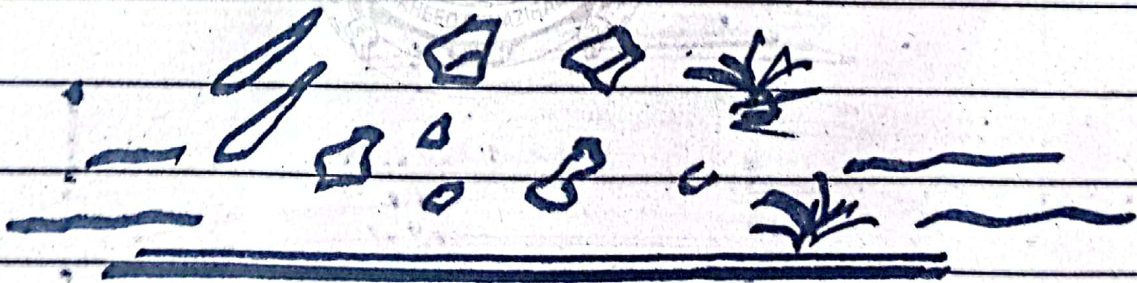
• Difference between ionic and covalent bond

	<u>Compansion</u>	<u>Ionic</u>	<u>Covalent</u>
i)	Meaning	form of chemical bond.	It is also a form of chemical bonding.
ii)	Formation	'loss' and 'gain' process.	'sharing' process.
iii)	Example	NaCl CaCl	H ₂ O NH ₃
iv)	Process	Oxidation and reduction.	No 'oxidation' and 'reduction'.

Land pollution

'Unwanted condition of land, called land pollution.'

Land pollution is unwanted and unpleasant condition of land, known as land pollution. Thus, land pollution is massive trashes on land.



Land pollution

Causes of land pollution

Following are

main causes:

- 1) Unawareness among public.

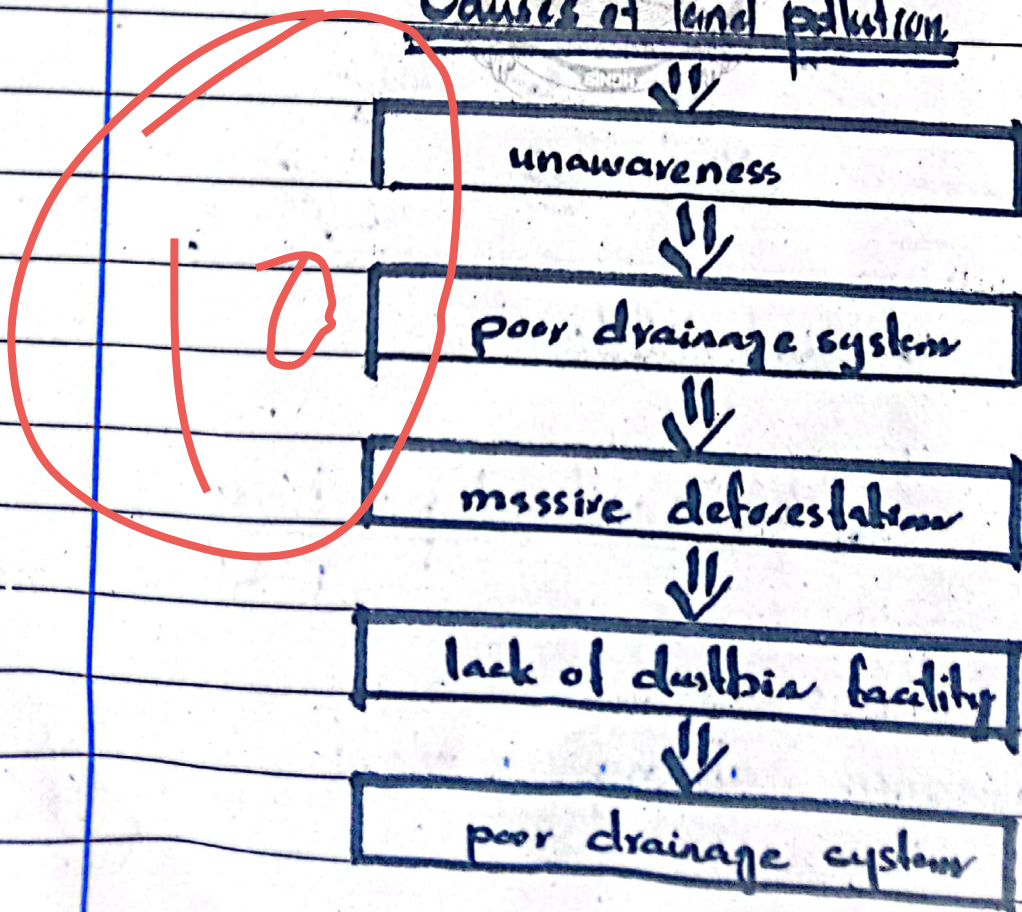
ii) Poor drainage system also causes land pollution.

iii) Heap of household trash leads to land pollution.

iv) Massive deforestation also causes land pollution.

v) No system of dustbin facility in public places.

Causes of land pollution





Q 4b)

COP-27 - Sharm-ul-Sheikh

COP-27 is a global conference of climate change."

In 2022, COP-27 was successfully led in Sharm-ul-Sheikh, Egypt. In fact, it was a global conference on climate change. Thus, COP-27 was a climate-based conference.



Main goals of COP-27

'COP-27 was a reducing emissions.'

COP-27 focus was

on three main areas:

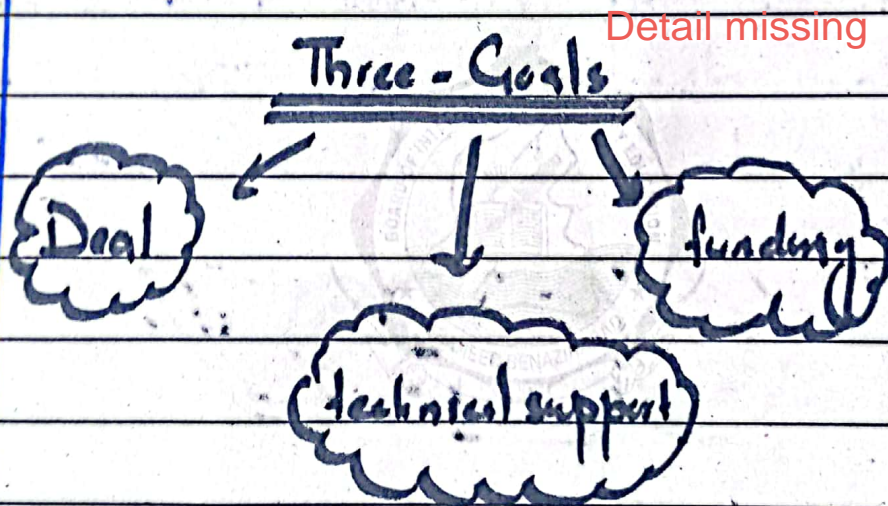
- i) Deal of climate change among countries.

8
ii) Funding for 'loss' and 'damage'

"Thanks to Pakistan,
playing a role in
approving funding"

(Toqeer Hussain)

iii) Technical support securing for climate
reduction.

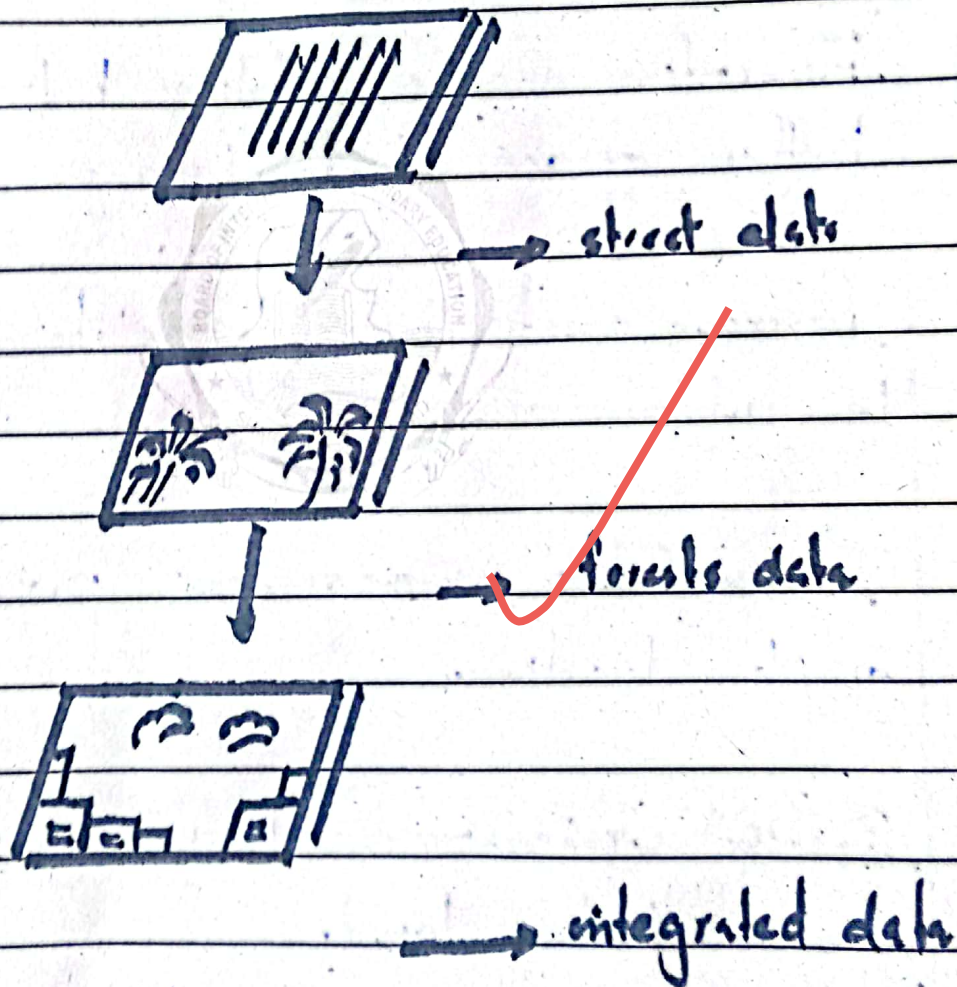


Q4c)

• Geographic Information System (GIS)

"GIS is a mapping
and analysing tool."

GIS is a mapping and analysing tool. It is helping in finding information of geographic locations, such as mountains, hills, seas etc. Thus, geographic locations are described by GIS.



• Geographic Information System

Role of GIS in environmental science

GIS has following roles:

- i) Huge nature information, such as, mountains, hills, seas, etc
- ii) Examination and re-forestation helps in better space of plantation.
- iii) Securing constructions leads to sustainable urbanization.
- iv) Transportation management proper geographic location.
- v) Better agriculture, helps in supporting productive land.



Q.4c)

• Artificial Intelligence (AI)

"Artificial intelligence is a manual - intelligence machinery."

AI is a machine that uses artificial intelligence. In fact, AI is a success of mankind. Several automatic machines are evidences of AI, such as robots.

• Fundamentals of AI

AI has following fundamentals:

i) Involvement in education is one of fundamentals.

ii) Agricultural technology use is also a fundamental.

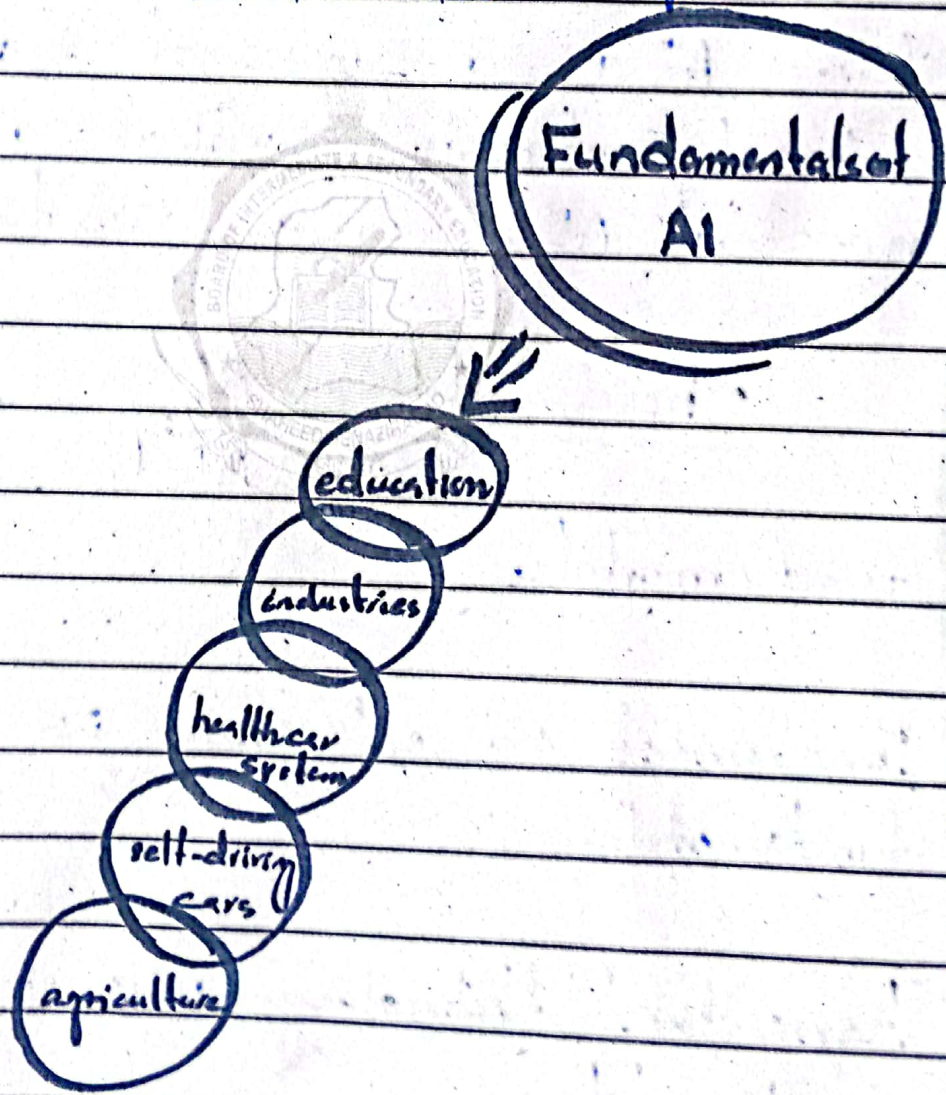
Irrelevant answer.



iii) Self-driving cars - managing better traffic system.

iv) Robotics industrialization leads to industrial revolution.

v) Healthcare system efficiency is a successful fundamental.



Section - II

Q 6a)

Number Series

i) 10, 100, 200, 310, ~~420~~

ii) 3, 7, 23, 95, ~~97~~

i) Solution:

$10 \times 10 = 100$

$10 \times 20 = 200$

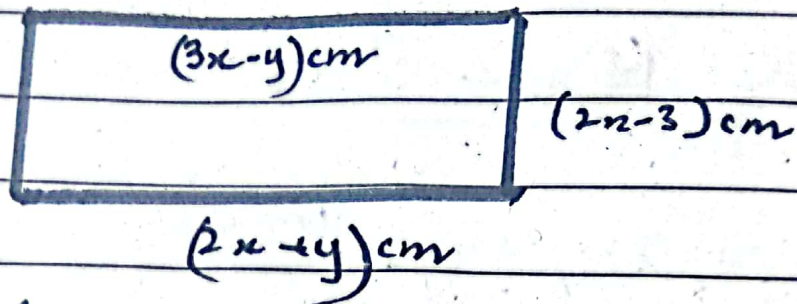
$10 \times 30 = 300 + 10 = 310$

$10 \times 40 = 400 + 20 = 420$

ii) Solution:

Succeeding prime number = 97

Q6b)

Date

$$\text{Perimeter} = 114 \text{ cm}$$

Area ?

Solution

$$P = 2(l+b)$$

$$114 = 2(l+b)$$

$$57 = l+b$$

$$l_1 = l_2$$

$$(3x-y) = (2x+y)$$

$$x = 2y$$

Q6

Data

$$\text{Romi} = x$$

$$\text{Nisha} = 15x$$

5-years ago,

$$\text{Romi} = x - 5$$

$$\text{Nisha} = 15x - 5$$

Nisha 3 times of Romi's age, so,
what is Nisha's age today?

Solution

$$15x - 5 = 3(x - 5)$$

$$15x - 5 = 3x - 15$$

$$15x - 3x = -15 + 5$$

$$12x = -10$$

$$x = \frac{-10}{12} = \frac{-5}{6}$$

Romi = $x = \frac{-5}{6}$; Nisha's age is $3\left(\frac{-5}{6}\right)$

$$\frac{-15}{6} = \frac{-5}{2} \text{ Ans.}$$

Q6cb

Data:

Oranges, 210

Apples, 252

Pears, 294

biggest possible number?

Solution

$$\text{Average} = \frac{210 + 252 + 294}{3} = 252$$

Answer

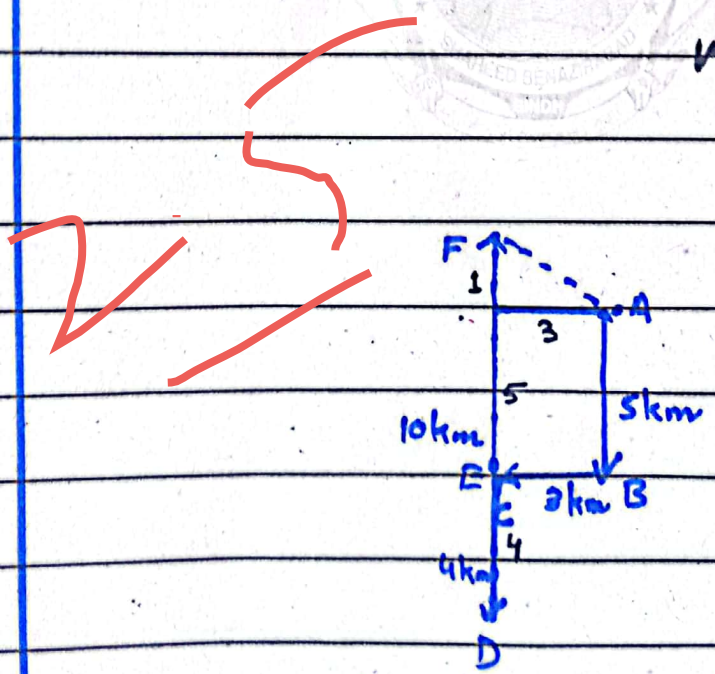
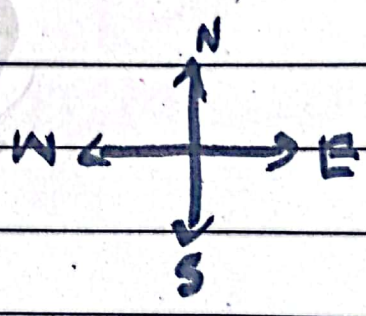


Q 8a)

Data:

South = 5km
 right of South = 3km
 left = 4km
 straight back = 10km
 direction?
 far from starting point?

Solution



$$H^2 = B^2 + P^2$$

$$H^2 = (3)^2 + (1)^2$$

$$H = \sqrt{9+1}$$

$$H = \sqrt{10} \text{ Km}$$

Answer

Square Roots
 direction North-west

North west

Q16)

Arithmetic mean

1st five prime numbers:

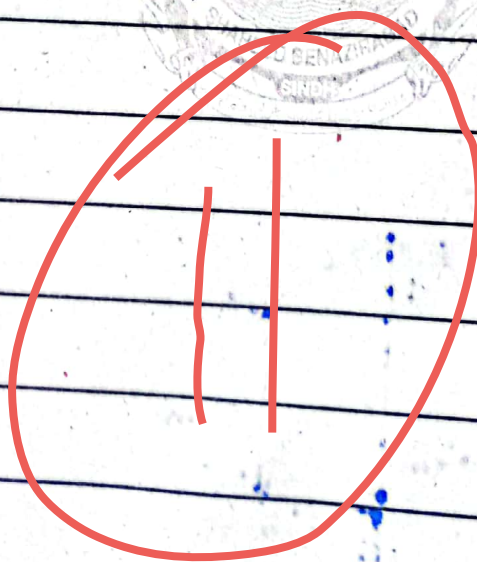
$$\begin{array}{cccccc}
 & 2, & 3, & 5, & 7, & 11 \\
 \downarrow & & \downarrow & & \downarrow & & \downarrow \\
 \text{Cubes} = & 8 & 27 & 125 & 343 & & 1331
 \end{array}$$

Solution:

$$\text{Mean} = \frac{8 + 27 + 125 + 343 + 1331}{5}$$

Write formula first for arithmetic mean. Then, solve the problem.

$$= \frac{1834}{5} = 366.8$$



Q8c

Data:

men = 50
road = 20km
days = 40

again,

men = 70
road = 20km
days = ?

Solution

Men	:	Days
50		40
70		?

Detailed working missing

$$= \frac{50 \times 40}{70} = 28.5 \text{ days.}$$

2

Q8d)

Data

Zahid's property = Rs 1750,000
 debt = Rs 150,000
 one son and one daughter
 share?

Solution

$$\begin{aligned} \text{Property} - \text{debt} \\ &= 1750,000 - 150,000 \\ &= 1,600,000 \end{aligned}$$

Ratio of 1 son and 1 daughter

$$1+1 = 2$$

$$\text{son's share} = \frac{1}{2} \times 1,600,000 = \text{Rs } 800,000$$

$$\text{daughter's share} = \frac{1}{2} \times 1,600,000 = \text{Rs } 800,000$$