

Date:

Date 21 - sep - 23

37.5

General Instructions

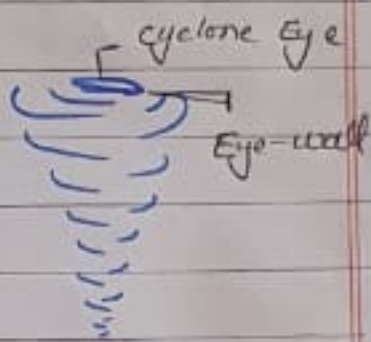
1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
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.

Question number 3

Part 11:

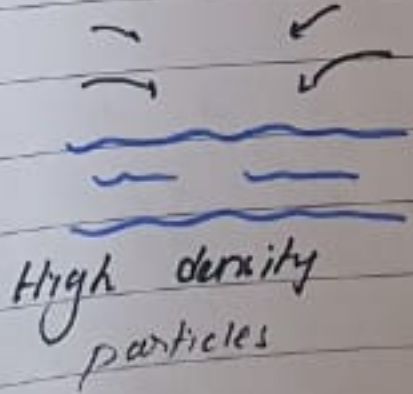
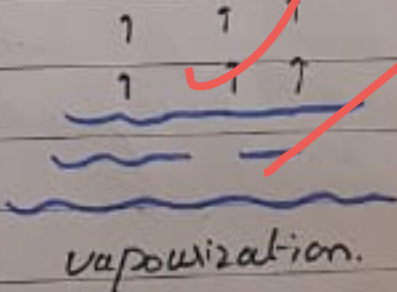
What is a cyclone?

Cyclone is a spirally wind of clouds and vapour formed on sea surface due to the following factors



- 1: High temperature causing evaporation
- 2: presence of different temperatures
- 3: Earth rotation

Process explanation: When vapours are raised and formed due to high temperature, it moves from higher density to lower density. The vacuume is then filled with high density particles coming from cold areas



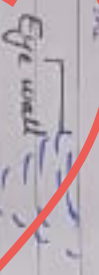
The rotation of earth makes the particle move in spiraling motion

Consequently, the spatial moment from a system which is inherently charged with energy from expansion and contraction effects.



In what part of system which are the strongest and destructives?

Eye walls of the cyclones are the strongest with high pressure and the most destructive.



→ Part B:

What are shallow focus and deep focus?

The focus is at a distance of range and depth of earthquake in the crust.



Shallow focus:

Earth quake with range in the depth of earth crust upto 70km is said to be shallow focus.

Deep Focus
The focus of earthquake may be in greater than 300km upto 700km is called deep focus.



What causes earth quake?

Factors are few causes of earth quake:

- 1: Convergence of plates tectonic
- 2: Disruption of plate tectonic
- 3: Internal pressure from earth crust.
- 4: Volcanic eruption

What are the recent magnitude of earthquake in Mexico?

The recent magnitude of earthquake in Mexico was 8.9 on Richter scale.

→ Part C:

What causes focus?

The focus caused by release of energy point mostly in

Elastic Rebound theory

Which mosquito?

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standing water and unhygienic area. ✓ The spread of malaria is caused through mosquitoes from people to people. ✓

Primary causes of Dengue Fever:

- 1: Standing water.
- 2: Open food
- 3: Poor waste management

Preventive measures

- 1: Standing water should be dumped with soil and any standing water occurrence should be avoided.
- 2: Mosquito net should be used during risulent seasons.
- 3: Food items must be covered.
- 4: Insects filters should be used or water should be boiled before using.

→ Part D:

Ionic bonds:

The bond is formed when any atom loses or gains an

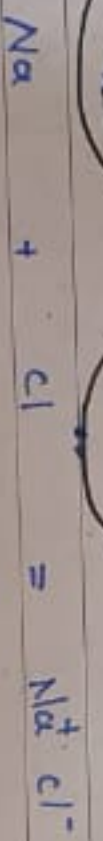
Cation
Anion

electron during chemical composition.
Two charged are formed on the
Proton

1. Positively charged atom:
when an atom loses an electron,
it is charged with positive sign.

2. Negatively charged particle:
when an atom gains an electron,
it is charged with negative charge.

Example: Chemical composition of
 NaCl



When an electron is donated from
Na, chlorine acquires the electron. This
forms sodium positive charge and
-th takes sodium negative charge.

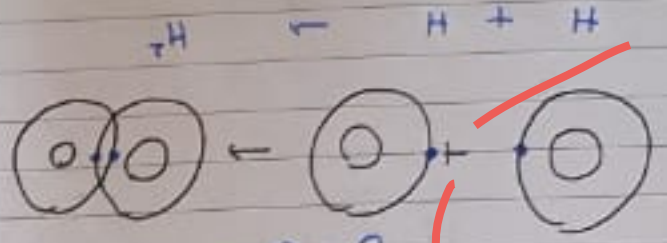
Covalent bond:

-In such bonds, electrons are
not donated completely but shared
between two or more atoms.

They do not have any charge allocated
 If there - Covalent bond is of many
 many types - the electrons should
 be shared between the atom also easily
 Single covalent bond: when
 the atom share single electron.

Double covalent bond: when
 two atoms are shared between the
 atom.
Triple covalent bond: when
 three electrons are shared between
 the atom.

Example: Bonding between
 hydrogen atoms



The bonding takes hydrogen atoms
 an covalent bond when each
 hydrogen share single electron
 this becoming single covalent bond

Question number 4

- Part A:

What are the causes of land

pollution?

Land pollution is the most caused
 by human activities. With the growing
 consumption and building population,
 land pollution has become a serious
 concern.

Causes of land pollution

Primary and secondary factors
 are as categorized below

1: Industrial residues Industrial
 residues was the leading reason
 land pollution. For example, packed
 residues of wastes common. Spent
 production in which spent the
 way for waste materials.

2: Non biodegradable materials
 pattern and industries are still
 continued towards the lack of

→ Part B:

What was the main goal,
of COP-23?

COP-23 was the annual session of
the UNFCCC.

east. Routinely, their products were
produced also would take million of
years to decompose. (Example, plastic
and wires, that causes serious land
pollution.

3: The culture of consumerism

Consumerism has become so rampant that
even the useful materials are not
recycled in societies. They prefer
purchasing new items instead of saving
and recycling the old ones.

4: Poor Legislation: Owing to

Poor legislation, there is no hindrance
on state level to cope with
wast management as to take
action against those who contribute
to land pollution - industries and
factories.

5: Growing population:

The growing population need greater
resources and would cause greater
consumer rate. As a result, land
pollution becomes uncontrolled.

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→ Part B:

What was the main goal of COP-23:

COP-23 was the annual session of World leaders under UNFCCC to bring about possible solutions for climate change. It was held in Guyana in the month of November.

Main goals:

1: Prepare targets for individuals states by the members had to draw potentials for goals. For achieving the goal of reducing global temperatures to 1.5°C.

2: Damage funds for vulnerable countries:

Discussion took the leading step in formulating and passing damage funds to vulnerable countries that are hit hard by recent catastrophes.

3: Setting new goals for mod of industrial countries: countries of industrial countries

Mudgod to go for electric cars and renewable energy generation by 2030.

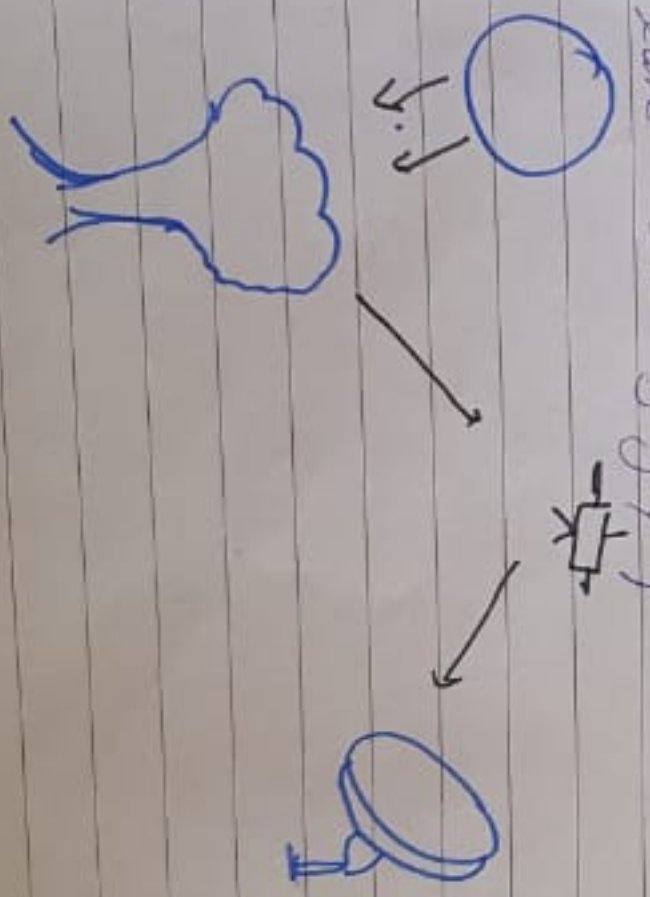
4: Progress assessment: The conference was to look into the progress of previous set goals. However, no encouraging progress was observed.

→ Part C:

What is the role of GIS in environmental science?

GIS: known as geographic information system. Through remote

sensing, GIS is capable of analyzing the condition of land and geography.



The information system is used to weather analysis. It can also be related to predict weather risk.

USE - the query temperature GIS has been used to call information about cities without ever being proved at the case. It can collect images, graphs and of energy.

→ Part D:

What are the fundamentals of Artificial Intelligence.

Artificial intelligence is the branch of computer science that perform function which are deemed to be intelligent. Example: processing, problem solving and learning.

Fundamentals of AI:

Following are the primary fundamentals of Artificial Intelligence.

- Self learning knowledge available information
 - Process input data and give output with base instruction
 - It machine independent
 - Utilized for different purpose
 - Speeds up problem solving
 - Can make decisions
 - Language learning through language module
- Moreover AI capable of text, video and content production

Avoid one liners.

Question number 6

→ Part A:

Identify the series

① 10, 100, 200, 310, 430

$10 + 90 = 100$, $100 + 100 = 200$
 $200 + 110 = 310$, $310 + 120 = 430$

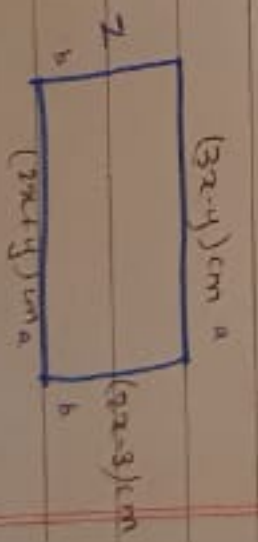
② 3, 7, 23, 95, 479

$3 \times 2 + 1 = 7$
 $7 \times 3 + 2 = 23$
 $23 \times 4 + 3 = 95$
 $95 \times 5 + 4 = 479$

→ Part B

Find the area of rectangle

Perimeter = 144



$P = 2b + 2a$
 $144 = 2(2x-3)cm + 2(3x-4)cm$

$144 = 4x - 6 + 6x^2 + 3xy - 2xy - 8$
 $144 = 4x - 6 + 6x^2 + 3xy - 4xy - 8$

$$144 = 2(2x - 3 + 6x^2 + 3xy - 2xy - y^2)$$

~~144~~

$$72 = 2x - 3 + 6x^2 + 3xy - 2xy - y^2$$

$$70 - 3 = 2x + 6x^2 + 2xy - 2xy - y^2$$

$$69 = 2x(1 + 3x) + y(x - y)$$

$$69 = (2x + y)(1 + 3x)(x - y)$$

→ Part C:

Nish is 15y older to

Romi. If 5y ago Nisha was 3

as old as Romi then find

Nishi's present age.

Romi age = x

Nisha Age = x + 15

Five years ago

Nisha

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

$$x + 10 = 3x$$

$$3x - x = 10$$

$$2x = 10$$

$$x = 5$$

Present age of Nisha

$$= 15 + x$$

$$= 15 + 5$$

$$= 20$$

Answer

→ Part D:

The biggest number of carbon needed for following

Fruits:

$$\text{Oranges} = 210$$

$$\text{Apples} = 252$$

$$\text{Pears} = 294$$

Taking HCF

$$210 = 5 \times 6 \times 7$$

$$252 = 2 \times 3^2 \times 7$$

$$294 = 2 \times 3 \times 7 \times 7$$

$$\text{HCF} = 42$$

Biggest possible number carbon required is 42 Answer

Question number 7

→ Part A:

Original Price of shirt = ?
Percentage Increase = 20px
New Price^{after} = 804x

Solution

$$x + 20\%x = x + 80$$
$$x + \frac{20x}{100} = x + 80$$

$$\frac{100x + 20x}{100} = x + 80$$

$$120x = (x + 80) 100$$

$$120x = 100x + 8000$$

$$120x - 100x = 8000$$

$$20x = 8000$$

$$x = \frac{8000}{20}$$

$$x = 400$$

The original Price of shirt is 400

~~x = 400 - 90~~

~~x = 320~~ Answer .

→ Part B
 The code for SISTER is
 BROTHFR " ODDSNOR

Decoding BROTHFR

B = O S = H
 R = D I = U
 O = G S = K
 T = S T = S
 H = N E = K
 E = O R = A
 R = A

→ Part C
 Office and draw the

Following

1: Scalen triangle
 When all sides of the triangle
 are different measures is called
 Scalen triangle



Scalen triangle

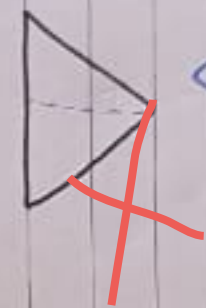
Equilateral Triangle

Triangle having equal sides is called equilateral triangle



What about angles?

Isosceles triangle with right angle



Part D:

Find Probability

Solution:

Total shoes of Pina = 18

Red shoes = 5

Probability of picking red shoes

$$\text{Probability} = \frac{\text{Favourable outcomes}}{\text{Total outcomes}}$$

$$P = \frac{5}{18}$$

$$\text{Probability} = \frac{5}{18} \text{ or } 0.37$$