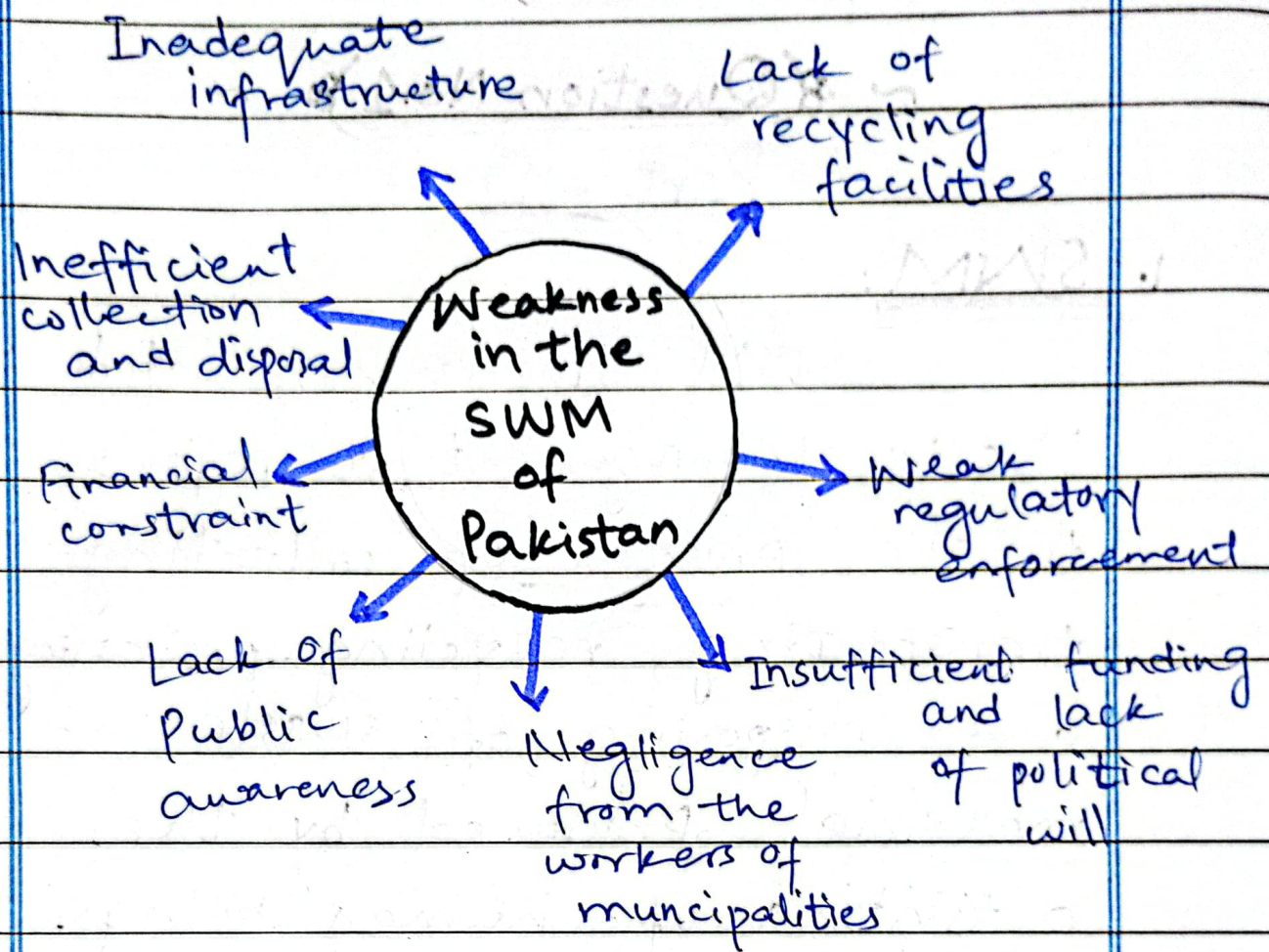


Test 2~ (Question No. 1) ~Part - D1. SWM:

SWM stands for Solid Waste Management. It refers to the process of collecting, transporting, recycling, processing and disposing of waste material produced by the activities of human beings. SWM is necessary to keep the environment clean and safe for living things.

2. Weaknesses in the SWM of Pakistan

The Solid Waste Management of Pakistan faces several weaknesses.



(i) Inadequate infrastructure:

The weakness in SWM is ~~inadequate~~ infrastructure that is not sufficient according to the growing demands and amounts waste generated in urban areas.

cii) Lack of recycling facilities:

Another weakness which Pakistan faces is lack or insufficient recycling facilities.

ciii) Inefficient collection and disposal:

In Pakistan, solid waste mostly remains uncollected. Collection and disposal process is inefficient. Waste segregation is not segregated properly.

civ) Financial constraint:

Another prominent weakness of SWM is financial constraint.

Pakistan has weak economy.
It can not afford the
expensive recycling facilities.

(v) Lack of public awareness:

People are unaware about recycling, disposal and segregation of waste. They discard waste improperly, affecting the environment badly.

(vi) Negligence on the part of workers of municipalities:

In Pakistan, workers are negligent. They have lack of awareness about their work or neglect their work intentionally.

3/15

(vii) Insufficient funding and lack of political will:

Another persistent weakness of SWM is insufficient funding and lack of political will. There is lack of political will to address the challenge of SWM in Pakistan.

(viii) Weak regulatory enforcement:

Weak regulatory enforcement is another weakness of SWM in Pakistan. Laws and regulations are not enforced properly.

3. Conclusion:

To conclude, it can be

: ٤٥

said that SWM is essential for the environment to keep it safe for humans as well as all living things. However, Pakistan faces multiple weaknesses of SWM which makes it vulnerable to climate disasters.

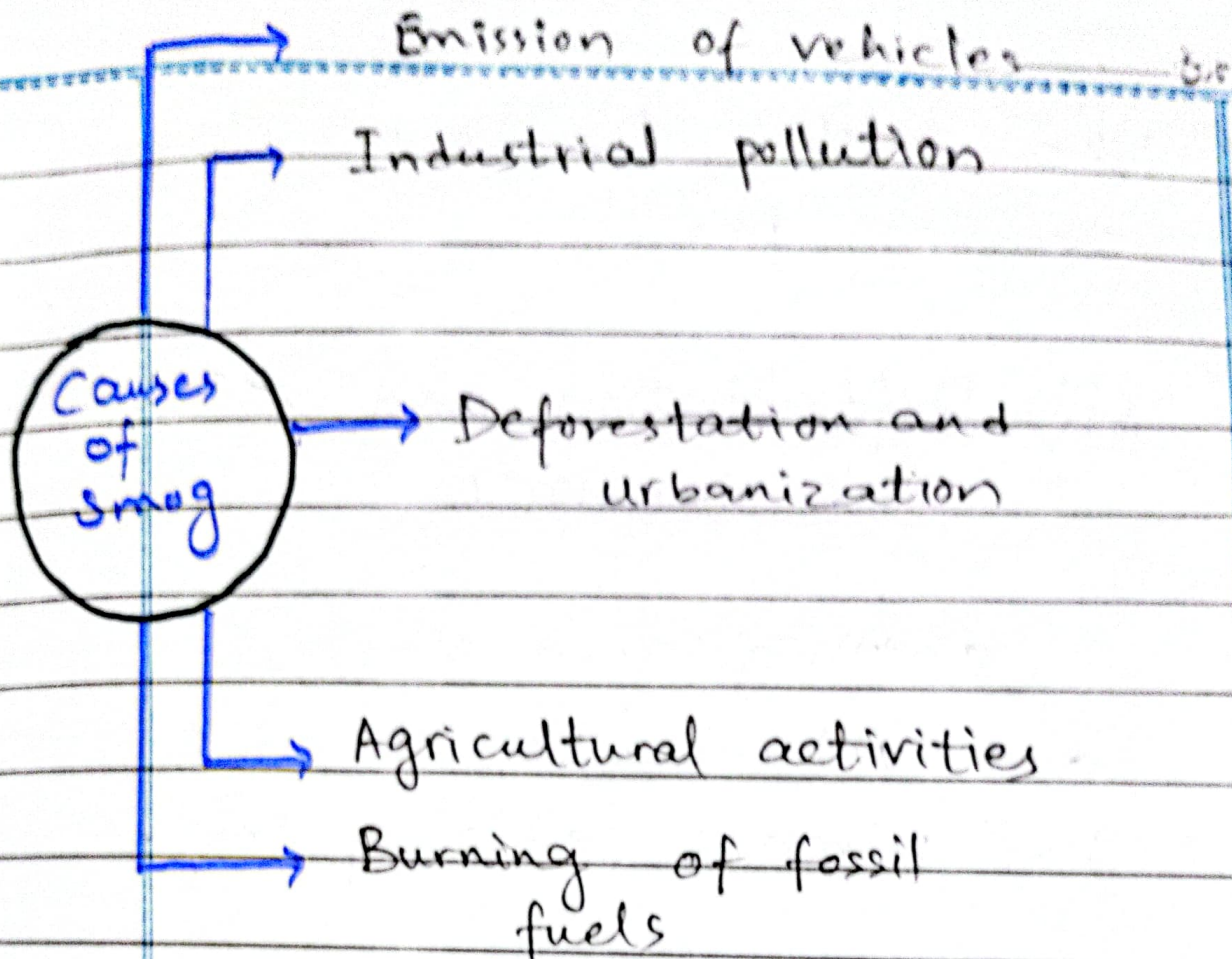
Part - C

1. Smog:

Smog is a type of air pollution, it is a mixture of both smoke and fog.

Smog is typically caused by industrial emission, vehicle exhaust and other pollutants in the environment.

2. Causes of Smog:



(i) Emission of vehicles:

Cars, trucks, buses, and other vehicles emit nitrogen oxides and volatile organic compound (VOCs) which are primary contributors of smog.

(ii) Industrial pollution:

Factories release pollutants

: 6/15

(SO₂)

like Sulphur dioxide which
causes smog.

(ii) Deforestation and urbanization:

cutting down of trees
and urbanization become
the primary cause of smog.

(iv) Agricultural activities:

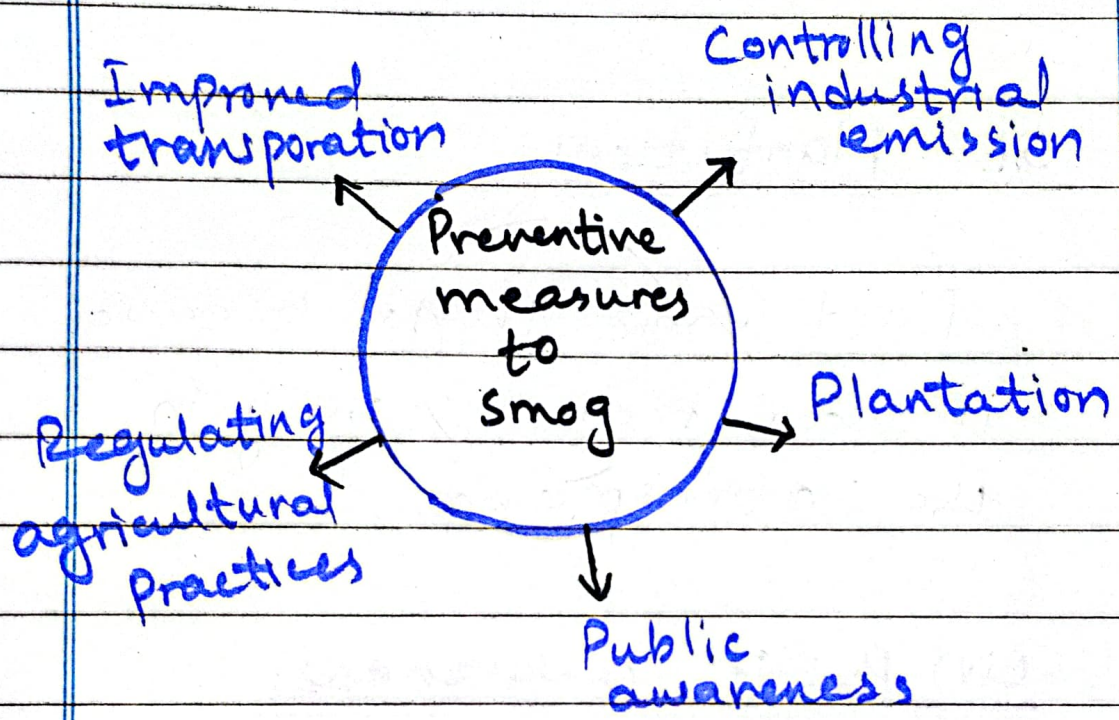
Fertilizers, pesticides,
and methane released by
the livestock can contribute
their share in smog.

(v) Burning of coal and fossil fuels:-

The combustion of coal, oil,
and gas release a large
amount of pollutants, such

... Sulphur dioxide and Carbon monoxide into the atmosphere

3. Preventive measures to smog



(i) Improved transportation:

Encourage the use of electric vehicles, public transportation and carpooling can reduce vehicle emissions.

(ii) Controlling industrial

emission:

Encourage stringent regulations on factories to limit the release of harmful pollutants.

ciii) Plantation:

Plant more trees because it can reduce smog in the atmosphere.

civ) Public awareness:

Public should have awareness regarding smog and its ill effect on human health.

(v) Regulating agricultural activities:

Reducing the use of chemicals, fertilizers, and pesticides and implementing better waste management strategies can help limit emissions from farming activities.

4 Conclusion:

To sum up, smog is a type of air pollution. There are certain causes of smog. To address them, preventive measures should be adopted to mitigate smog in the environment.

Part - B

1. Nephron:

The nephron, the functional unit of the kidney, is responsible for removing waste from the

Date: _____

body. Each kidney is composed of over one million nephrons that dot the renal cortex, giving it a granular appearance when sectioned sagittally.

2. Structure of Nephron

A nephron is made up of renal corpuscle and renal tubule.

(i) Renal Corpuscle:

The initial filtering component of the nephron, made up of a glomerulus and a Bowman's capsule.

The glomerulus is a tuft of capillaries, and Bowman's capsule is a cup-shaped structure.

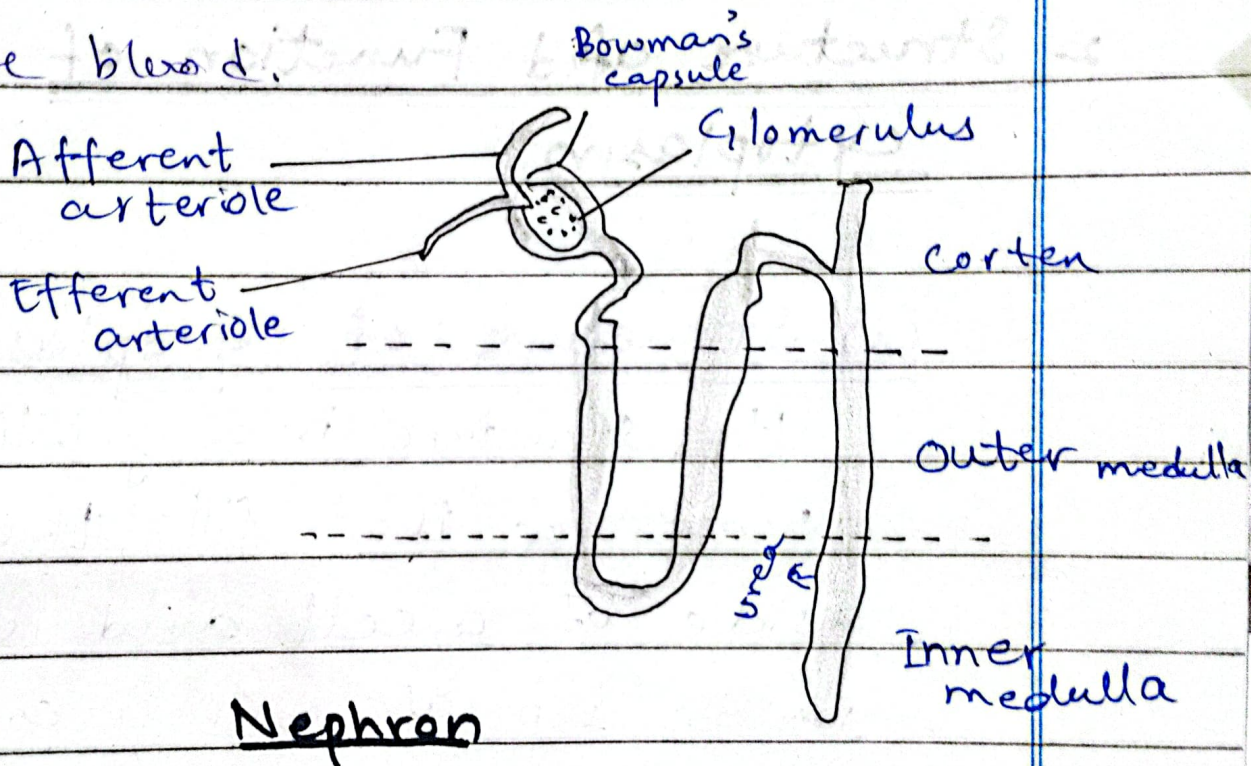
(ii) Renal tubule: It

processes and carries away

the filtered fluid.

3. Function of Nephron:

Nephron filters blood to remove waste products like urea, salt, uric acid, and excess water. They also return needed substances to the blood.



4. Conclusion:

In a nutshell, nephron is a basic functional unit of kidney. Its function is to separate waste from the blood.

Part A

1. Cell:

Cell is the basic structural and functional unit of a living organism. It is considered as a 'basic unit of life'.

2. Structure and Function of cytoplasm

(i) Structure of cytoplasm

Its structure is a gel-like substance that fills the inside of a cell and is made up of many components like.

(a) Cytosol

(b) Cytoskeleton

(c) Organelles

(d) Cilia and flagella

Function of Cytoplasm

(a) Cell signaling

Cytoplasm transmit signals from cell membrane to the nucleus.

(b) Metabolic Processes

Cytoplasm is the site of various metabolic reactions.

(c) Protein Synthesis

Ribosomes within the cytoplasm translate mRNA into protein.

3 Structure and Function of plastids

(i) Structure of plastids

Plastids are organelles found in plant cells and some protists. They have:

(a) Double membrane

(b) Stroma

(c) Thylakoids

ii) Function of Plastids

(a) Photosynthesis

It contains pigments like chlorophyll, which absorb light energy to produce glucose.

(b) Starch Synthesis:

Plastids synthesize and store pigments like chlorophyll.

(c) Amino acid synthesis

Plastids can synthesize and contain amino acids like aspartate.

4. Structure and function of nucleus

ci) Structure of nucleus

The nucleus is a membrane-bound organelle, containing:

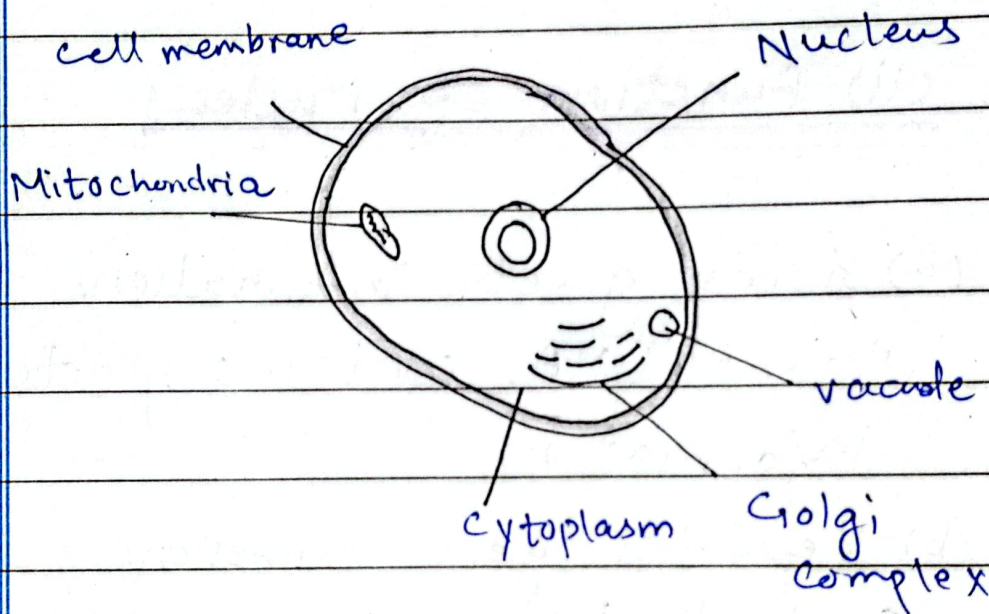
- (a) Nuclear envelop
- (b) Nuclear pores
- (c) Nucleoplasm
- (d) Nucleolus

(ii) Function of nucleus

- (a) Stores genetic information:
House DNA, contains genetic information
- (b) Regulates gene expression:
Controls transcription and translation of genes.
- (c) Repairs damaged DNA:
Corrects errors in DNA sequences
- (d) Replicates DNA:
Duplicates DNA during cell division.

Conclusion

To conclude, it can be said that cell is basic unit of life. Likewise, cytoplasm, plastids and nucleus have their own structure and functions.



~ Question No. 3 ~

Part - A

1. An eye:

The eye is a complex and specialized sensory organ that detects light, colour and

: 25

other visual stimuli, allowing human to perceive and interpret the world around us.

2. Working of human eye

The human eye works by bending light to focus it onto the retina, which then converts the light into electrical signals that the brain interprets as image.

i) Cornea:

The clear, dome-shaped front layer of eye that bends light to help focus it

ii) Pupil:

The opening in the iris that controls how much light enters the eye.

iii) Iris:

The coloured part of eye that controls the size of pupil to regulate how much light enters the eye.

iv) Lens:

The inner part of eye, work with cornea to focus light onto the retina.

v) Retina:

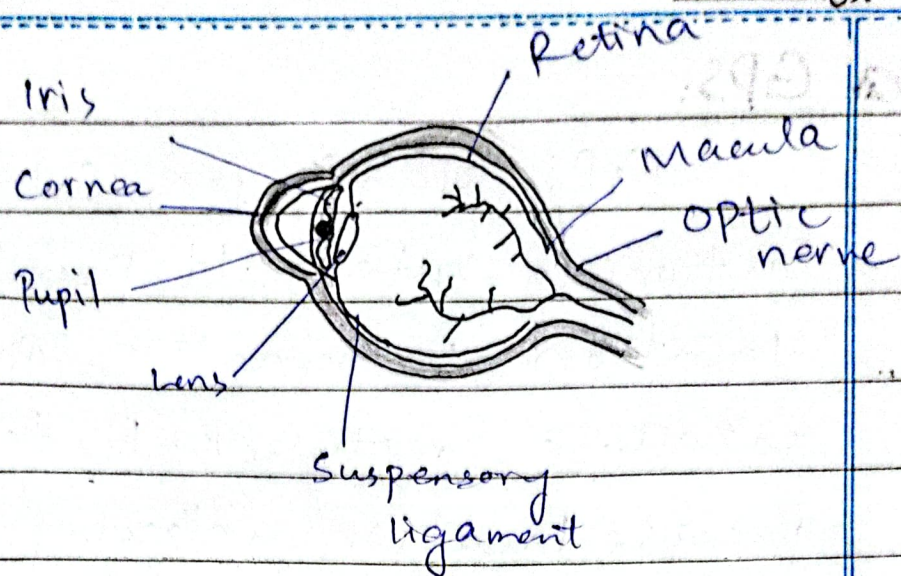
It is at the back of eye, containing photoreceptor cells called rods and cones.

vi) Optic nerve:

Transmit electrical signals from the retina to the brain.

vii) Brain

Decodes and processes the electrical signals from retina to create the images which humans see.



Structure of human eye

3. Conclusion:

Human eye is an important sensory organ which helps them to see and visualise things.

Part - D

1. GIS:

GIS stands for Geographic Information System. It captures, stores, analyses, and displays geographically referenced data.

2. GPS:

GPS stands for Global Positioning System. It provides location information through satellite network. It determines precise location, velocity, and time. It also enables navigation tracking and mapping.

3. Difference between GIS & GPS

GIS	GPS
a) A computer-based tool used for capturing, storing and displaying geographical referenced data.	a) A network of satellites orbiting around the Earth, providing location information to GPS receivers.
b.) It integrates spatial data (maps) with attribute data (database) to	b) It determines precise location and time using satellite signals.

analyze and visualize relationships.

c) It generates maps, reports and analytics to support decision-making.

d) Ex: Urban planning, environmental monitoring, emergency response etc

c) It provides location coordinates velocity and time.

d) Ex: Navigation system, tracking devices, surveying

4. Conclusion:

To sum up, GIS and GPS are two distinct technologies. Both are different in function and output. GIS supports in decision making while GPS

enables navigation and tracking.

Part C

1. Eutrophication:

Eutrophication is a process where a body of water becomes enriched with excess nutrients, such as nitrogen and phosphorus, leading to an overgrowth of algae and depleting of water's oxygen.

2. Causes of eutrophication

(i) Sewage and wastewater:

Unchecked or poorly treated water or sewage releases nutrients into water bodies.

(ii) Agricultural runoff:

Fertilizers and pesticides from farms enter water ways, carrying excess nutrients.

(ii) Industrial effluent:

Factories and industries release nutrient-rich wastewater.

3. Effects of eutrophication

(i) Loss of biodiversity:

Eutrophication alters ecosystem, leading to a decline in plant and animal species.

(ii) Human health risks:

It can produce toxins

: 31

harmful to humans, such as microcystin.

(iii) Economic impacts:

It affects fisheries, tourism, and recreation, leading to economic losses.

4 Conclusion:

To conclude, it can be said that eutrophication is not a good thing. There are several cause behind eutrophication besides effects.