

TEST-02

27/40

QNO1:

(A) Cell is considered as a "basic unit of life:"

Cell is considered as a basic of life because it maintains structure, perform functions, and transfer hereditary information from parents to offsprings.

(i) Structural maintenance: Cell maintains the structure of the organelles that is necessary for the performance of the body.

(ii) Functional Unit: Cell performs functions like energy production, reproduction, growth, and waste elimination that is necessary for the human body.

Cell is consists of different organelles including cytoplasm, nucleus, and plastids.

Cytoplasm:

It is the living content between protoplasm and nucleus. It consists of organelles and cytosol. The living content is cytoplasm and nucleus that together forms protoplasm.

Functions:

- (i) It acts as a storage house
- (ii) It performs streaming movement
- (iii) It contains different organelles that performs important functions such as mitochondria, Golgi Apparatus.
- (iv) It play role in metabolism.

Plastids :

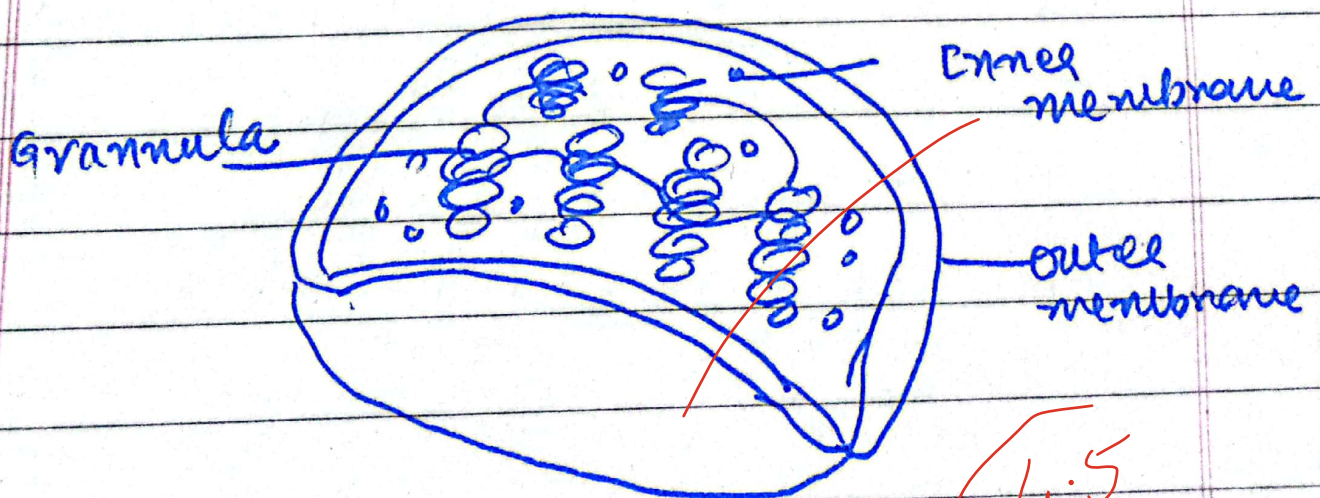
It is a membrane bound structure present in plants cells.

It consists of cytoplasm, chromoplast, and leucoplasts.

(i) Chloroplast: It gives green color to plant by containing chlorophyll during photosynthesis process.

(ii) Chromoplast: It is present in the petals of plants and gives color other than green to plants.

(iii) Leucoplasts: It is colorless - It is present in roots and stems of plants.

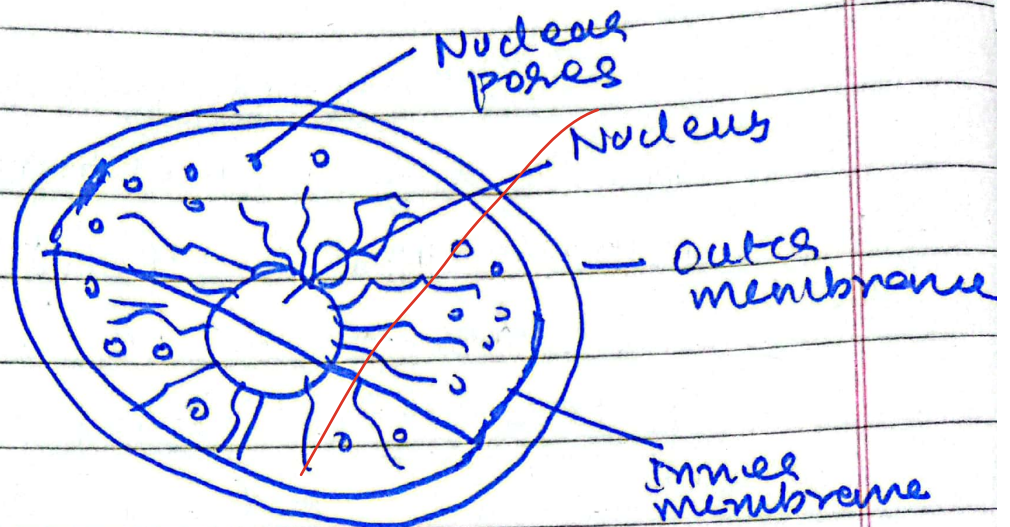


"~~Cytoplasm~~" "plastids"

4.5

Nucleus:

It is present in every cell of the plant and human cells. It is a darker structure as compared to other parts of the cells. It has irregular shape.



"Nucleus"

Functions:

- (i) It is a hereditary unit.
- (ii) It transfers hereditary information from parents to offsprings.
- (iii) It synthesizes proteins.
- (iv) It synthesizes RNA.

(B)

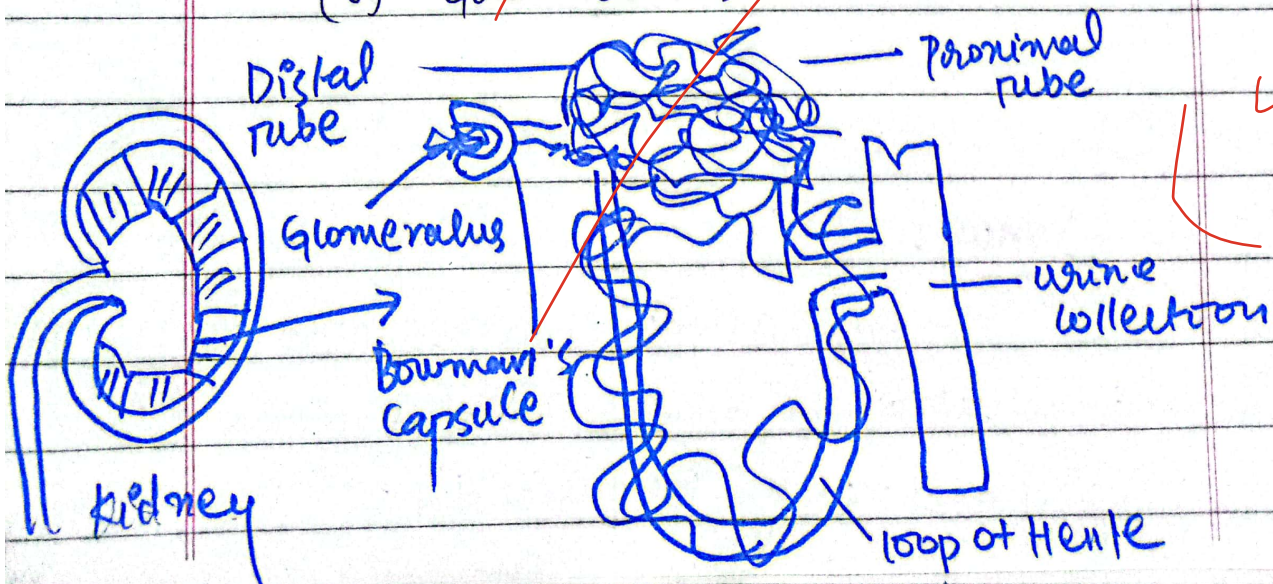
Nephron:

It is the basic and structural unit of kidneys. It filters, reabsorbs, and secretes the urine and helps kidneys in performing its functions. Each kidney is covered with about 1 million nephrons.

Structure:

The nephron consists of about four parts

- (i) Bowman's Capsule
- (ii) Loop of Henle
- (iii) proximal convoluted tube
- (iv) distal convoluted tube.
- (v) glomerulus



Functions :

- (i) The fluid moved from glomerulus to the Bowman's capsule.
- (ii) From Bowman's capsule that fluid flows towards the distal tube.
- (iii) The absorption of large molecules took place at distal tube including amino acids, fats, and blood cells.
- (iv) Fluid moves toward proximal tube.
- (v) In proximal tube further absorption took place.
- (vi) From proximal tube the fluid came into ureters and stored in bladder.

(C)

Smog:

It is a type of atmospheric/air pollution. It makes the atmosphere fuzzy and reduce the visibility.

Composition:

It is composed of fog, dust, smoke and other chemicals released from different sources.

Causes:

(i) Vehicle Emissions:

The major cause of smog is vehicle emissions. Vehicles released the toxic smoke and burn petrol and gas that is the major reason behind the poor air quality index in Lahore.

(ii) Industrial Emissions

Another major reason behind the smog is the industrial emissions. Many industries released toxic gases including methane in environment that cause smoke & become the reason of smog.

(iii) Burning of Fossil Fuels:

Another reason behind the smog is the burning of coal, oil and natural gas.

(iv) Rapid Urbanization and Population Growth:

Rapid and unplanned urbanization and population growth rate is another reason that cause smog. The rapid population increases the depletion of sources that results in air pollution.

Prevention of Smog:

(i) Curb Vehicle Emissions:

There is a need to prevent vehicle emissions in the environment. There is a need to promote public transport system in the country to control smog.

(ii) Clean Energy :

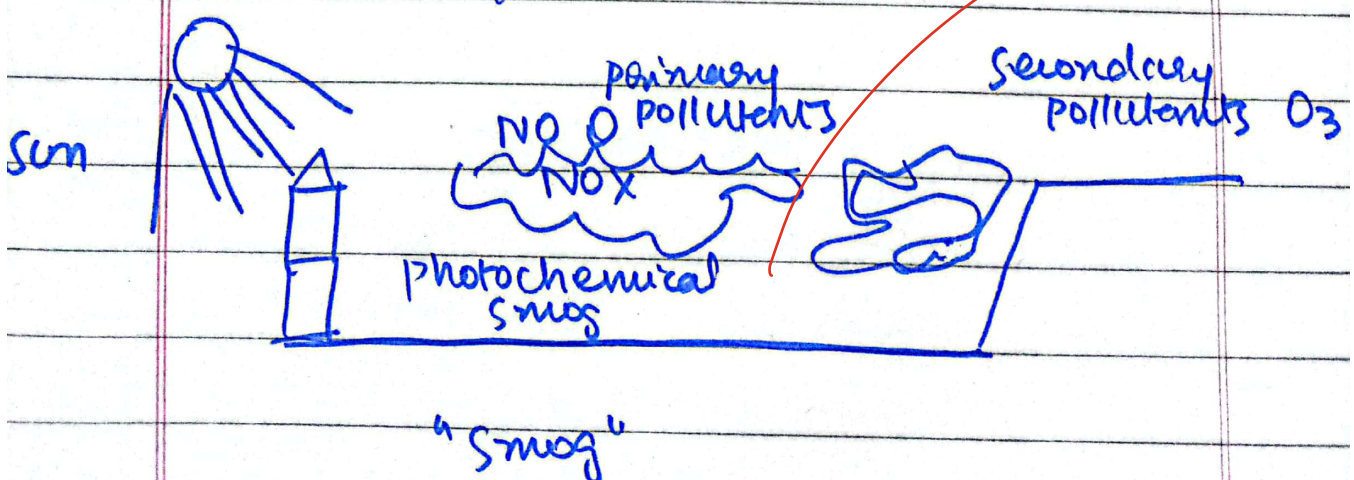
There is a need to use clean energy resources in order to control smog in the environment.

(iii) Banning Open Fires and Burning:

There is a need to ban activities that includes fireworks and burning of waste in open places.

(iv) Reforestation:

By introducing green cover the pollution from the environment can be reduced and smog can be controlled.



(D)

What is SWM?

Solid waste management is a way to dispose off sanitary and industrial waste. It includes organic, hazardous, non hazardous and biodegradable waste. SWM collects, transports and treats waste collected by different places.

Weaknesses of SWM in Pakistan:

(i) Lack of infrastructure:

SWM in Pakistan lacks the basic infrastructure that is needed to dispose off the waste.

(ii) Inefficient Governance:

Poor efforts of the municipal bodies & lack of accountability hinder progress.

(iii) Financial constraints

Insufficient fund to collect & treat the waste for gas and lephate treatment.

(iv) Poor Recycling System :

Pakistan lack the proper technology that is needed to recycle the waste material.

Solutions:

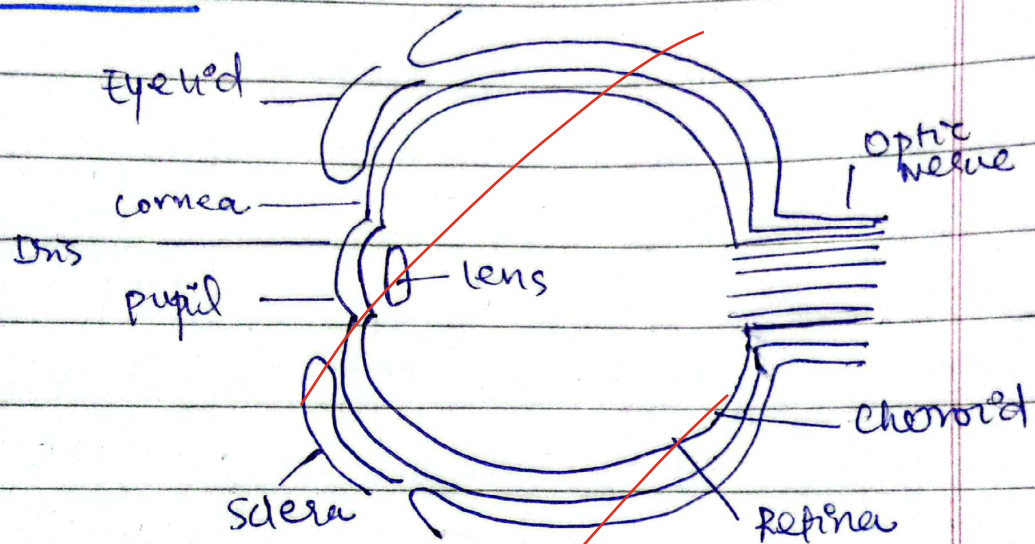
- (i) Pakistan needs policy reforms to improve the system of SWM.
- (ii) The technological advancement can help Pakistan recycle the wastes.
- (iii) There is a need to provide or allocate more budget in this sector in order to manage it.

QNO3.

(A) Human Eye: Working

Human eye is an organ in the human body through which human beings are able to see things around them.

Structure:



Function/working of Human Eye:

Human eye consists of number of components that perform different functions.

- (i) Sclera: It is an outer covering. It consists of the white

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that is visible from outside. It protects the eye.

(ii) Cornea:

The layer after sclera in the eye is cornea. The light in eye enters through cornea in eyes.

(iii) Iris:

It is a dark muscular structure behind the cornea. It determines the color of the eye.

(iv) Pupil: The small opening in the iris is pupil. The size of the eye is controlled by pupil. It narrows down in bright light.

(v) Lens:

Behind the pupil is the lens. It is a transparent structure that sees the image.

(vi) Retina:

It is a light sensitive layer present behind the lens on which the image formed. It consists of the nerve cells.

(vii) Nerve cells:

It consists of the cones and rods. It changes the image in the electrical signals and send electrical signals to Brain that process the image.

(viii) Photoreceptors:

They convert the image in the electrical signals for the brain.

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(B)

Malaria

1. It is disease that is caused by plasmodium parasites.

2. It is transmitted by falliparum mosquito.

3. Its symptoms include fever, vomiting, respiratory disease, and poor metabolism.

Dengue

It is a mosquito borne viral disease.

It is transmitted by aedes aegypti mosquito.

Its symptoms include flu-like fever, vomiting, blood in vomiting, poor digestion, rash, headache, and pain in eyes, muscles and abdomen.

4. Its incubation period is 4-20 days.

Its incubation period is 10-15 days.

5. It can be prevented by using medications, insecticides, and avoiding activities with infected person.

It can be prevented by regulating water systems, parks. It can be controlled by using insecticides. It can be avoided by wearing full-sleeves clothes.

(C)

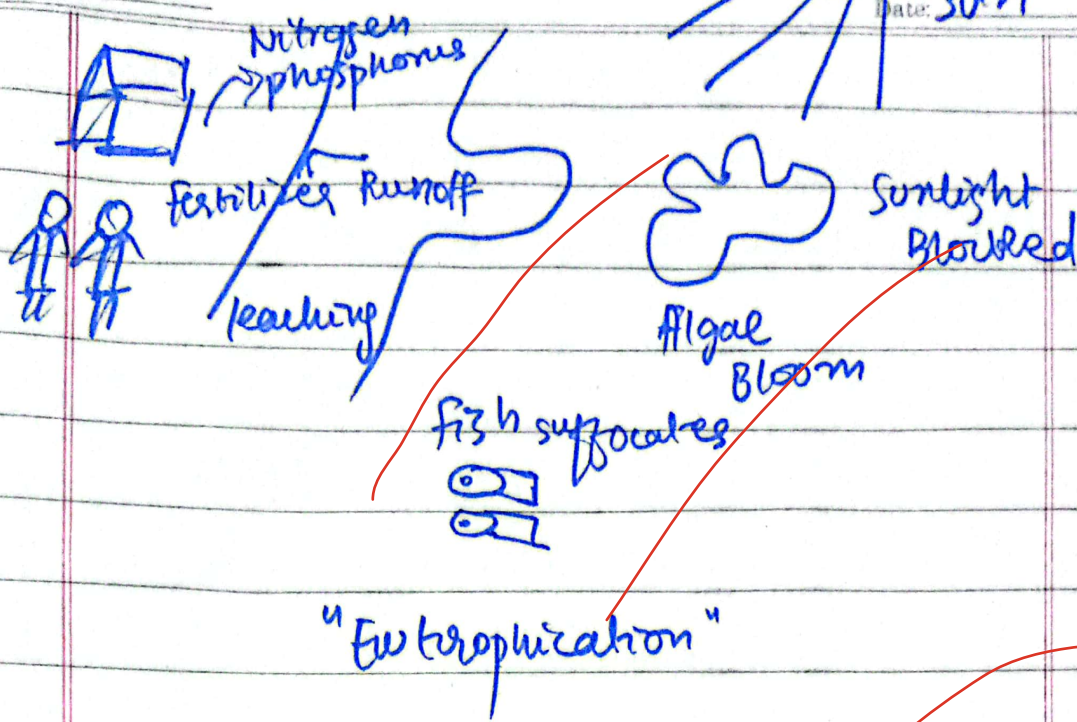
Eutrophication:

It is defined as the contamination of the water bodies due to excessive nutrients that leads to excess of microorganisms and algae bloom/growth. It blocks the sunlight and cause algae to bloom leading to

Causes: blockage of sunlight.

Day: _____

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(i) Nutrient pollution:

Eutrophication process is caused by the nutrient pollution. The fertilizer waste from agricultural areas travels towards water bodies and cause pollution.

(ii) Sewage and waste water discharge:

The release of contaminated water and waste material is another reason responsible for eutrophication.

(iii) Industrial Discharge:

It is caused by industrial discharge that includes phosphorus and nitrogen that pollutes the water.

(iv) Deforestation and Soil Erosion:

Deforestation of land and soil erosion is another reason behind the eutrophication -

Effects:

- (i) It results in algae blooms that block the sunlight from reaching the water bodies -
- (ii) It causes the oxygen depletion from the water bodies
- (iii) The depletion of oxygen results in the loss of aquatic life and biodiversity loss -
- (iv) It affects the quality of water and degrades it.
- (v) It creates deadzone where no aquatic life exist such as Gulf of Mexico -