Day: Date:

GISA

Question no. 2

a) Water pollution

Any change or modification in the physical, chemical or biological properties of water that will have detriment effect on living organisms are called water pollution. It is the contamination of water bodies such as rivers, lakes, streams and oceans by human activities.

Types of water pollution

1) Chemical pollution

Chemical pollution is caused by the introduction of harmful chemicals from industrial wastes, fertilizers, pesticides and heavy metals that poison water.

2) Biological pollution

Biological pollution is caused by pathogens,

Day: Date:

bacteria, viruses, parasites from sewage and animal wastes which cause diseases.

3) Nutrient pollution

Nutrient pollution is caused by nutrients such as nitrogen and phosphorous from fertilizers causing algal blooms and eutrophication.

4) Surface water pollution

Surface water pollution is caused by landfill dumping, industrial waste in surface water bodies like rivers, oceans and streams.

5) Oil and plastic pollution

It is caused due to oil spills and non-biodegradable plastics.

Measures to control-water pollution

1) Proper disposal of wastes

Factories, construction large buildings, industries

create water pollution. This wastes should dispose off properly.

2) Use renewable energy resources

Implement renewable energy resources that can reduce pollution. Solar energy, wind and hydropower energy are pollution free methods of obtaining power

3) Use eco-friendly chemicals

Factories, industries should use eco-friendly chemicals instead of toxic chemicals. These eco-friendly chemicals do not contaminate water as they have little or negative impacts.

4) Develop eco-friendly products

Companies should develop ecofriendly products that are recyclable.

5) Use 3R formula

Reduce, reuse and recycle. Reduce use of plastics.

recycle leftover material and reuse that material.

b) Cell

Cell is the basic structural and functional unit of life. The cell was discovered by Robert hook in 1865. It control all life activities. It is derived from Latin word cellulae which means little room. Cell can be unicellular (Bacteria) or multicellular (plants or animals). The study of cell is called cytology. Cell is divided into two distinct categories prokaryotic cell and eukaryotic cell.

Plant Cell	Animal Cell	Microorganismic Cell
1) Cell wall is present which is mad up of Cellulose.	1) Cell wall is absent in animal cell. only cell membrane present	1) Cell wall is present in bacteria and fungi but absent in protozoa.
2) Nucleus is present at the side due to large vacuole.	2) Nucleus is present at the centre	2) Bacteria does not contain nucleus while yeast contain nucleus.
3) Chloroplast is present in plant cell	3) Chloroplast is absent in animal cell.	3) Chloroplast absent in microorganisms.
4) Plastids are present in plant cell. ~~Centrioles are~~	4) Plastids are absent in animal cell.	4) Plastids are present in algae but absent in yeast, fungi, and bacteria.
5) Centrioles are absent in plant cell	5) Centrioles are present in animal cell.	5) Centrioles are absent in microorganisms.
6) They are fixed and rectangular in shape.	6) They are round or irregular in shape	6) They are very small and simple in structure.
e.g. Leaf cell	e.g. muscle cell nerve cell	e.g. E-coli

Day: Date: Day:

d) GIS

Geographic information system is computer based system capable of capturing, storing, analyzing and displaying geographically referenced information. It helps in understanding patterns, trends and relations related to Earth surface. It consist of

- Hardware
- Software
- Data
- user
- Procedure

Environmental applications of GIS

GIS has various applications.

1) Land use and land covering mapping

GIS is used to identify forests, water bodies, urban areas and agriculture.

2) Disaster management

Flood risk mapping, earthquake prone zones, forest fire prediction are done with the help of GIS

3) Environmental monitoring

GIS is used to monitor deforestation, desertification, pollution level and habitat change.

4) Climate Change studies

It is used to analyze temperature and rainfall pattern and their effect on ecosystem.

5) Water resource management

GIS is used for mapping rivers, water bodies, groundwater zones.

6) Pollution control

GIS monitor air, water and soil pollution.

7) Conservation of wildlife

It is used to trace endangered species and habitat mapping

c) Food digestion process

Food digestion is the process of breaking down of complex food into simple substances so that it become easy for body to absorb nutrients and water.

The process of food digestion is:

Oral cavity

Teeth chew food into smaller pieces. Saliva containing amalyse enzyme break starch into maltose. Food is shaped into a bolus for swallowing.

Esophagus

Bolus travel through esophagus to reach stomach.

Stomach

Stomach muscle churn food. Gastric juice break proteins into peptides.

Small intestine

Dudenum receive digestive enzyme from pancreas

Day: _____ Date: _____

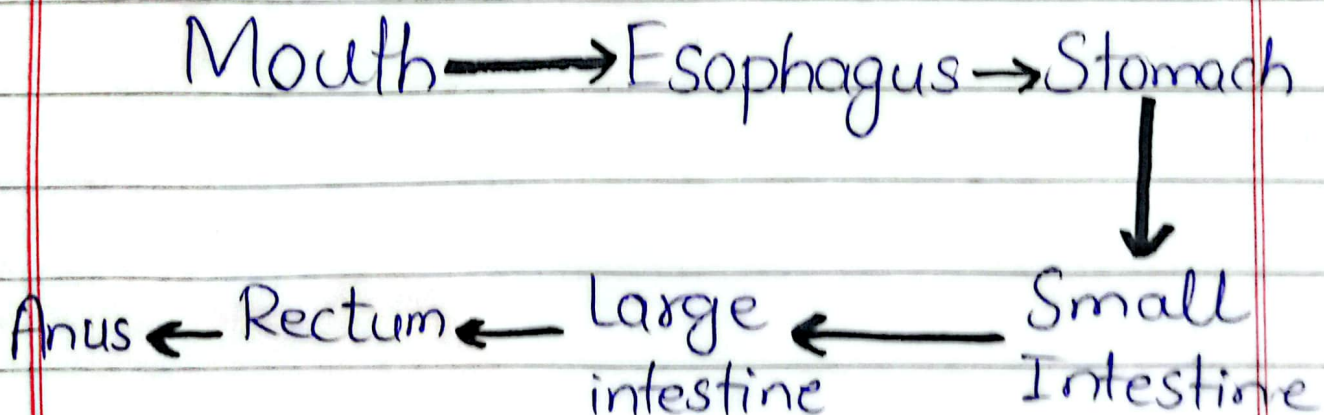
and bile from liver. Jejenum and Illeum absorb nutrients like amino acids, fatty acids glucose into the blood.

Large intestine.

Large intestine absorb water and salt. It form feces from undigested food.

Rectum and anus.

Feces are stored in rectum and eliminated through anus.



Question no. 3

a) Working of nephron in human body

The nephron is the functional unit of kidney. It filter blood, remove waste and ~~we~~ maintain water and electrolyte balance. Each kidney contain one million nephron

Working of a nephron

1) Filtration

Blood pressure forces blood through glomerulus. Small molecules water, glucose, salt, and urea are squeezed out of the blood, forming a fluid called glomerular filtrate. Large molecules remain in the blood.

2) Reabsorption

The filtrate move into the renal tubules, where the body essential substances are re-absorbed into the blood stream. About 50-60% of water

Day: Date:

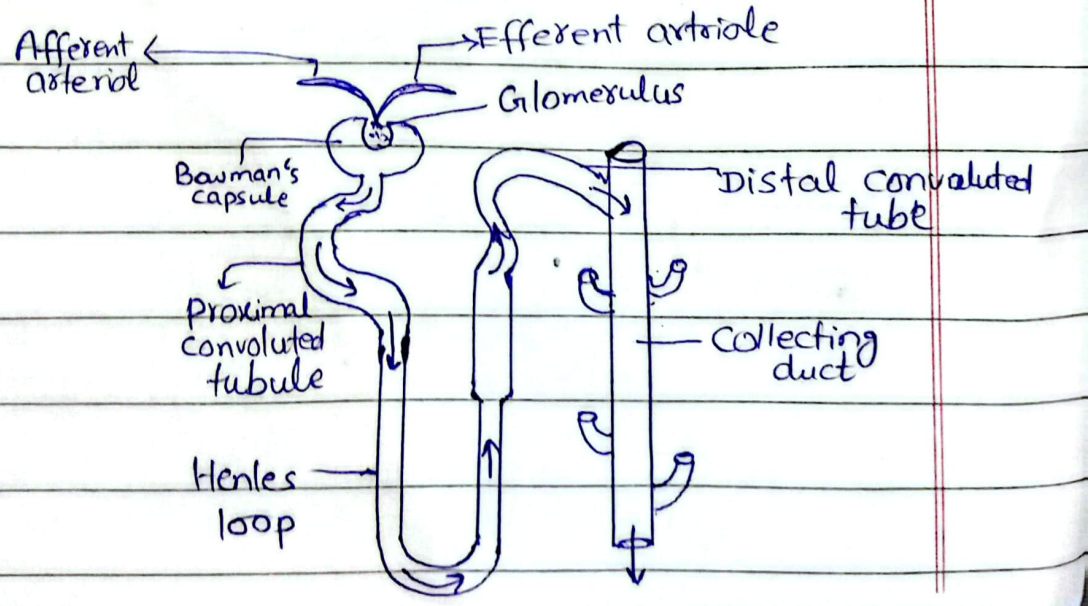
is also reabsorbed here.

3) Secretion

As the filtrate moves through the tubules, additional waste products such as hydrogen ions are selectively excreted from the blood into the tubule. This process regulate blood pH.

4) Excretion

The fluid reach the collective duct. It contain urea and excess water and salt. The urine travels to the renal pelvis through ureter to the urinary bladder. Finally, it expelled from the body through Urethra.



Day: Date:

b) Acid rain

Effect:

- Acid rain destroy forests, reduce soil fertility and affect human life.
- It corrodes building monuments and vehicles due to its acidic nature.
- It affect aquatic life.
- It cause respiratory problems in human beings such as asthma.

Solution.

- Use renewable energy sources instead of fossil fuels.
- Limit the use vehicles emitting sulfur and nitrogen oxides.
- Enforce strict environmental laws on industrial emissions.

Smog

Smog

- Cause respiratory problems like asthma, eye irritation, and aggravates heart problems.

Day: Date:

- Smog reduce the process of photosynthesis in plants.
- Smog leads to traffic acidents.

Effe Solution

- Increase greenery to control pollution
- Install filters and scrubbers to reduce smoke and particulate matters.
- Limit the use of vehicles
- Increase awareness among public

c) Global warming

Global warming is considered as threat because it disrupts earth's climate system.

- Melting glacier and polar ice increase the risk of flood.
- Due to global warming average temperature of earth

increases.

★ It cause frequent heat waves, drought, floods, disasters damaging human life.

★ It cause biodiversity loss because many species can not adopt rapid temperature change leading to extinction.

★ Due to high temperature soil fertility reduce which reduce crop yields.

★ It increase health problems such as vector borne diseases and worsen air quality.

★ It damage infrastructure and increase cost of disaster preparedness.

d) Biofuels

Biofuels are fuels produced directly or

indirectly from organic material including biomass, plants and animals.

Production.

Bio ethanol production.

It is a type of alchol that can be produced using any feedstock. Fermentation of sugar, starch give alchol

Bio diesel production.

Biodiesel is produced by combining vegetable oil or animal fat with an alchol. It can be blended with diesel fuel in ignition engines.

Biogas production:

It is a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen. It can be produced from raw material such as waste, plant materials etc.

Day: _____ Date: _____

Benefits of biofuels

1) Biofuels are renewable and are not likely to run out.

2) Biofuels are used to reduce the impact of greenhouse gases.

3) Biofuels are adaptable to current engine design and perform very well.

4) Biofuels reduce the demand of oil.

5) Biofuels generate rural employment and support local agriculture.

6) It convert waste into renewable energy.