

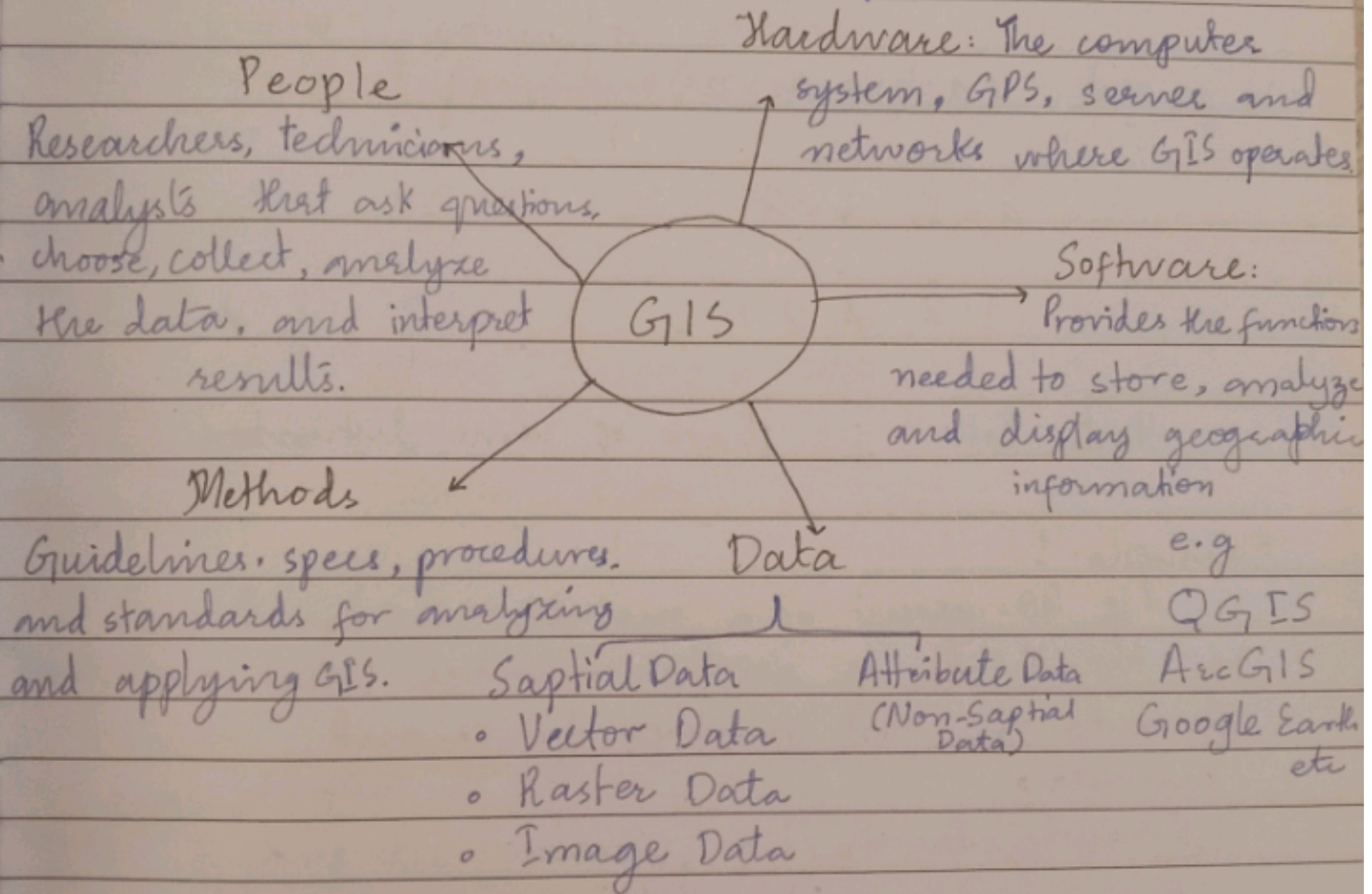
# GIS

Date: \_\_\_\_\_

Graphic Information System (GIS)

It is a computer system which is used for storing and presenting the information in the form of maps.

## COMPONENTS OF GIS



# FOOD PRESERVATION

Date: \_\_\_\_\_

Definition:

"Food preservation is the technique to prevent food spoilage, food poisoning, and microbial contamination in food."

Objectives Of Food Preservation:

1. To prevent microbial contamination.
2. To kill pathogens.
3. To minimise food spoilage and food poisoning.

Food Preservation Techniques:

Physical Methods:

Drying

Freezing

Canning

Smoking

Pasteurization

Irradiation

Chemical Methods

Salting

Pickling

Sugaring

Artificial Additives

## PHYSICAL METHODS:

1. Drying = It's one of the oldest methods. In this process food is dried in air, in the sun or using gas or is vacuumed. It prevents bacterial growth by reducing water activity.
2. Freezing = Food is stored at temperature below  $0^{\circ}\text{C}$ . It is used to store food for long time (few months). It's very useful in case of national emergency for storing food stocks.
3. Canning = In canning food is cooked and preserved in sterile containers. The container is boiled and this kills or weakens bacteria.
4. Smoking = Food is cooked with or exposed to smoke. (heat causes dehydration and food reacts to smoke).

- 5) **Pasteurization:** Pasteurization is a heat treatment designed to kill or deactivate microorganisms like (pathogenic bacteria, yeasts and molds) present in food beverages (particularly in liquid form).
- 6) **Irradiation:** In this process, food is exposed to x-rays radiation. Ionizing radiation kills mold, bacteria, and insects, sterilizes food at high doses, and slows the ripening of fruits.

## **CHEMICAL METHODS:**

- 1) **Salting:** This method draws moisture from meat through process of osmosis, which prevents bacterial growth.
- 2) **Pickling:** Pickling is a method of preserving food in an edible anti-microbial liquid such as wine, vinegar, lemon juice, alcohol, oil, brine.
- 3) **Sugaring:** Sugar is used to preserve fruits, either in syrup with fruits or in crystallization form. Crystals are formed after drawing out moisture, which inhibits bacterial growth.
- 4) **Artificial additives:** They are antimicrobial and antioxidant preservatives: they prevent bacterial growth or food oxidation, but may be toxic if used in large quantities.

# Dengue:

## Definition:

Dengue is a virus transmitted by a mosquito that is active during day. That mosquito is "Aedes aegypti".

## Symptoms:

Most common symptoms are:

- Headache
- Joint aches
- Muscle aches
- Nausea and vomiting
- Swollen lymph node
- Fatigue
- Rashes on body

## Prevention:

- Use insecticide treated nets or spray the room before sleeping
- Close all doors and windows before dawn
- Cover your body properly while sleeping.
- Clear stagnant water and gutters.
- Empty bins properly

## Treatment:

- Fluids intake, in case of dehydration
- Acetaminophen (Tylenol) or Paracetamol are given for fever and pain.
- Other medications, depends on condition of patient.

# Hepatitis:

## Definition:

Hepatitis is an inflammation of the liver, often caused by viral infections.

## TYPES:

### 1. Hepatitis A (HAV):

Causes: Contaminated food or water.

Symptoms: Fever, fatigue, nausea, abdominal pain

Prevention: Vaccination, good hygiene, clean drinking water, and food practices.

Treatment: Proper nutrition and rest.

### 2. Hepatitis B (HBV):

Causes: Contact with infected blood, sexual contact, or from mother to child.

Symptoms: Jaundice, fatigue, abdominal pain.

Prevention: Vaccination, avoiding sharing needles and safe sex.

Treatment: Antiviral medications, immune system modulators.

### 3. Hepatitis C (HCV):

Causes: Contact with infected blood, primarily through sharing needles.

Symptoms: Often asymptomatic at start, but can lead to liver damage.

Prevention: Avoiding sharing needles, new blades to be used when visiting hairdresser.

Treatment: Anti-viral medications.

### 4. Hepatitis D (HDV):

Causes: Only occurs in individuals already infected with HBV.

Symptoms: Can be more severe than HBV.

Prevention: Hepatitis B vaccination.

Treatment: Managing symptoms and supporting liver function.

### 5. Hepatitis E (HEV):

Causes: Consuming contaminated water.

Symptoms: Similar to HAV, with occasionally severe cases.

Prevention: Improved sanitation and hygiene.

Treatment: Supportive care, similar to HAV.

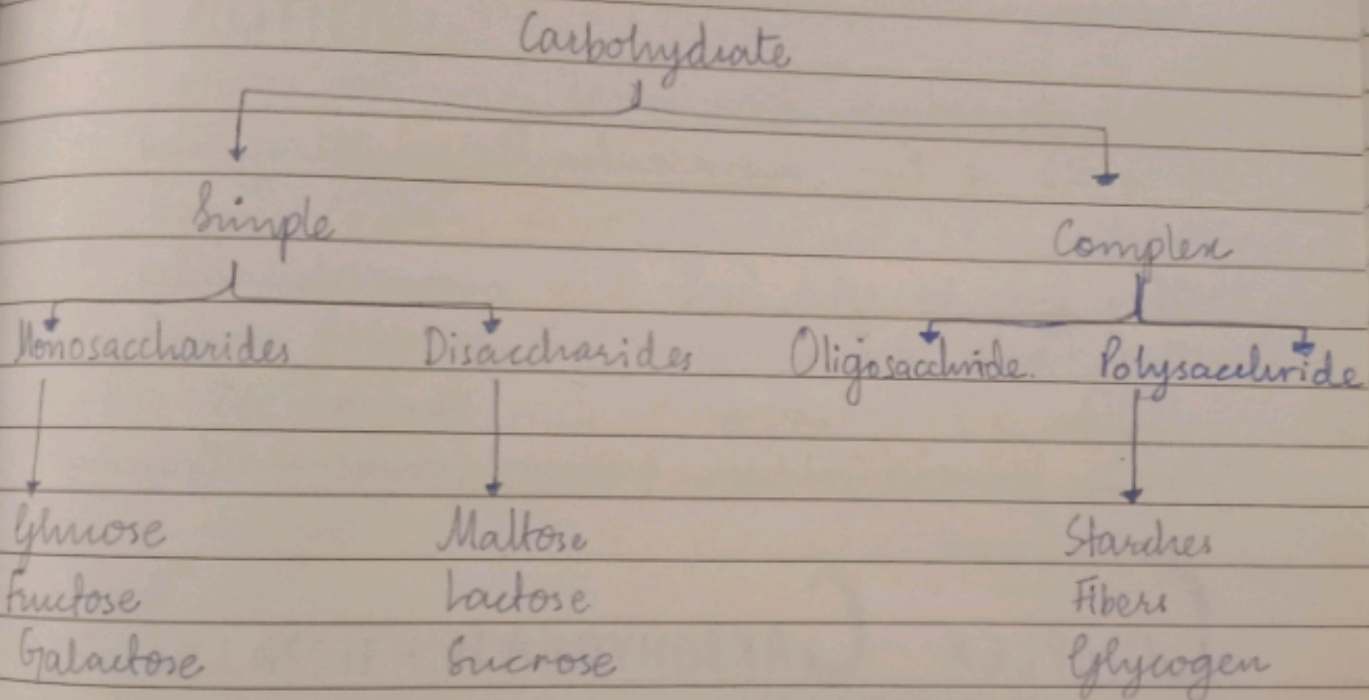
# 1. Carbohydrate:

Date: \_\_\_\_\_

The term carbohydrates means "hydrates of carbon"  
Carbohydrates can be represented by formula  
" $CH_2O$ "

Chemically, carbohydrates are polyhydroxy aldehyde or ketones.

## TYPES:



## SIMPLE CARBOHYDRATE:

- Simple carbohydrates broken down quickly by the body
- Naturally found in fruits & milk.
- In processed food it is found as candy, soft drinks, syrups, etc
- They are easy to digest
- They are known as sugars or saccharides.

## Monosaccharide:

- It is simple carbohydrate
- It consist of only one saccharide or sugar.
- Monosaccharides are classified according to:
  1. Number of carbon atoms present in the molecule
    - triose • tetrose • pentose • hexose
  2. The type of carbonyl group they contain.

Aldelyde group  
(Aldoses)

Ketone group  
(Ketoses)

## Disaccharides:

- It consist of two monosaccharide units joined together
- They can be split into two monosaccharides.
- Disaccharides are :

Maltose (Glucose + Glucose)      Lactose (Galactose + Glucose)      Sucrose (Fructose + Glucose)

## COMPLEX CARBOHYDRATE:

- Complex carbohydrates are made up of sugar molecules that are string together in long, complex chains.
- Stable source of energy.
- Take longer to digest.

## Oligosaccharides:

- It consists of three to ten monosaccharides.
- Occur free in nature.
- Raffinose and stachyose are oligosaccharides.



- They are long chains of carbohydrates molecules composed of several smaller monosaccharides.
- They are an important source of energy in animal cell and form a structural component of a plant cell.
- Most common examples of polysaccharides are glycogen, cellulose, starch and inulin.

## 2. PROTEIN:

- Proteins are very large molecules composed of basic units called amino acids.
- Proteins contain carbon, hydrogen, oxygen, nitrogen, and sulphur.
- Proteins perform the most basic & important aspects of life include metabolism, movement, defense, cellular communication, and molecular recognition.

## CLASSIFICATION:

- Proteins molecules are large, complex molecules formed by one or more twisted and folded strands of amino acids. Each amino acid is connected to the next amino acid by covalent bonds.
- Proteins are classified based on their structure, function, and composition.

## STRUCTURAL CLASSIFICATION:

- Primary Structure: Sequence of amino acids in a polypeptide chain.

- Date: \_\_\_\_\_
- Secondary Structure: Local folding patterns like alpha helices and beta sheets.
  - Tertiary Structure: Overall 3D structure of a single polypeptide chain.
  - Quaternary Structure: Arrangement of multiple polypeptide chains in a protein complex.

## CLASSIFICATION BASED ON COMPOSITION:

1. Simple Proteins: A protein that contains amino acids only.  
Examples: Albumin, globulins & histones.
2. Conjugated Proteins: A protein that has some non-protein part in its structure along with protein part.  
Examples: glycoprotein, lipoprotein, phosphoprotein, chromoprotein etc.
3. Derived Proteins: Protein derived from simple & conjugated proteins by physical and chemical treatment.  
Example: Peptones, peptides & denatured proteins.

## FUNCTIONAL CLASSIFICATION:

Based on the function they perform, proteins are classified in the following groups with examples.

- Structural Protein: Keratin of hairs & nails, collagen of bone.
- Enzyme or Catalytic Protein: Hexokinase, pepsin.
- Transport Proteins: Hemoglobin, serum albumin.
- Hormonal Proteins: Insulin, growth hormone.
- Contractile Proteins: Actin and Myosin.
- Storage Proteins: Ovalbumin, glutelin.
- Genetic Proteins: Nucleoproteins.

### 3. FATS:

- Also known as lipids
- Fats is an organic molecule.
- It gives high amount of energy
- Composed of fatty acid and glycerol.
- Fats play important role in various biological functions, including insulation, cushioning of organs, and serving as structural components of cell-membrane.

### CLASSIFICATION:

Fats can be classified into several categories based on their structure.

#### 1. Saturated Fats:

- They don't have double bonds between carbon atoms.

- They are solid at room temperature.
- They are commonly found in animal products and some plant oils.

## 2. Unsaturated Fats:

- They have one or more double bonds between carbon atoms.
- They are divided into:

### Monounsaturated Fats

Found in foods

like:

- Olive Oil
- Avocados
- Nuts

### Polyunsaturated

Fats (Omega-3 and Omega-6 fatty acids)

Found in:

- Flaxseeds
- Vegetable oil
- Fatty Fish

## 3. Trans Fats:

They are artificially created fats through a process called hydrogenation. Trans fats can be found in processed and fried foods. They are associated with health risks and are advised to be limited in the diet.