Name   Inshirah Hussain
Assignment   General Science
Topic   Typhoid Fever
Submitted To Sir Majid Ch.

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Q. What is typhoid fever? Briefly explain its causes, symptoms, preventive measures and treatment.

1) Definition:

Typhoid fever is a life-threatening infection caused by **bacterium Salmonella Typhi**. It is also called **enteric fever.**

2) Causes Of Typhoid Fever:

Typhoid fever is caused by a bacteria Salmonella Typhi. It is usually spread through contaminated water and food. Once Salmonella Typhi bacteria entered through ingestied, they are multiple and spread into the bloodstream.

3) Symptoms of Typhoid Fever:

Symptoms of typhoid fever starts slowly, often showing up 1 to 3 weeks after exposure to the bacteria.

- **Early Symptoms:**
  Early symptoms include fever that starts low and increasing throughout the day, Chills, muscles aches, diarrhea, constipation, headache etc.

- **Late Symptoms:**
  Late symptoms include severe stomach pain, swollen stomach and an infection caused by gut bacteria spreading throughout the body called **sepsis.**

- **Severe Cases:**
  In severe cases, patient become confused and not be able to pay attention to anything around them.

4) **Preventive Measures of Typhoid Fever:**
Frequently, washing hands with hot, soapy water are the best way to prevent from infection. Avoid to drink contaminated water. Avoid to eat raw food. and the food which are stored or served at room temperature.

- **Vaccination:**

People can 'be' get a vaccination for the prevention of typhoid fever.

- **World Health Organization:**
As at March 2023, WHO has prequalified two conjugat vaccines for the prevention of typhoid fever.

5) **Treatment of Typhoid Fever:**
Patient must be treated with antibiotics (Cephalosporins, Fluoroquinolones).

- **Drinking fluids:**
Drinking fluids are used to prevent dehydration caused by long fever and diarrhea.

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Q1 Define Food Additives and its types?

1) Definition:

· Food additives are the substances that become part of a food product when they are added during the processing or making of that food.

2) Types Of Food Additives:

There are two types of food additives.

a) Natural Food Additives

b) Man-made Food Additives

a) Natural Food Additives:

(i) Herbs and spices add to flavor to foods.

(ii) Vinegar for pickling food.

(iii) Salts, to prevent meats.

b) Man-made Food Additives:

(i) Anti-Caking Agents:
Stop ingredients from sticking together and forming lumps.

(ii) Anti-Oxident Agents:
Slow or prevent the oxidative deterioration of foods.

(iii) Artificial Sweeteners:
Increase the sweetness in food without adding kilojoules.

(iv) Mineral Salts:
Enhance the texture and flavor of food.

(v) Bulking Agents:
Increase the volume of food without majorly changing its available energy.

(vi) Colors:
Add or restore colors to foods.

(vii) Emulsifiers:
Prevent water and oil from separating, as well as keep fat from clumping food.

(viii) Food Acids:
Influence the function of other substances e.g slow the growth of microorganisms.

(ix) Gelling Agents:
   Change the texture of food via
   gel formation.

(x) Flavor Enhancer:
   Improve the flavor and aroma of food.

(xi) Firming Agent And Stabilisers:
   Maintain the evven dispersion of
   substances in foods.

(xii) Thickeners And Vegetables Gums:
   Enhance the texture and consistency
   of food.

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Q2 Define Food Preservatives and its methods?

1) Definition:
Food preservatives is a substance or chemical that is added to foods to prevent decomposition by microbial growth or by undesirable chemical changes.

2) Why food is preserved?
There are three reasons for food preservation.
1) To prevent bacterial growth and preserve the natural characteristics of food.
2) To preserve the appearance of food.
3) To increase the shelf value of food for storage.

3) Methods For Food Preservatives:

Natural Food Preservatives

Food Additives

4 Methods

Chemical Food Preservatives

Artificial Food Preservative
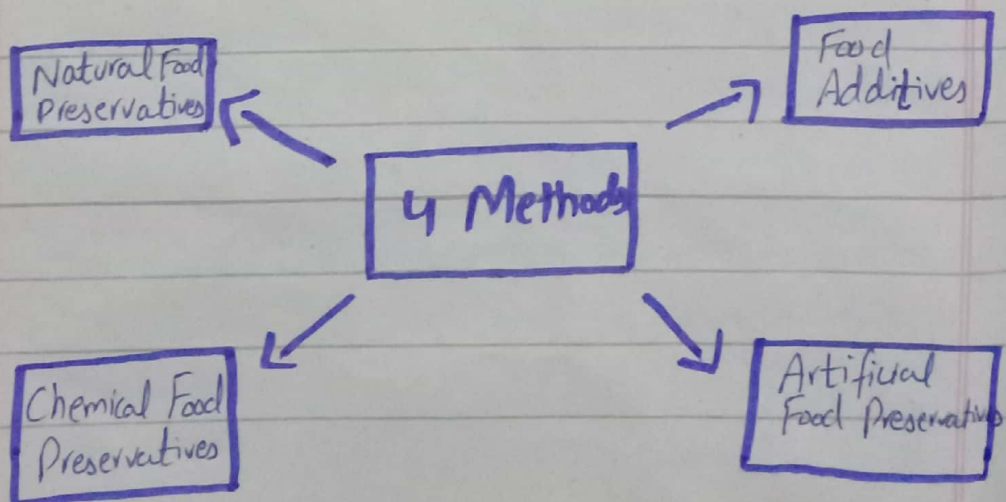
1) Natural Food Preservatives:

In this category of natural food preservatives comes the salts, sugar, alcohol, vinegar etc. These are the traditional preservatives in foods that are also used at home while making pickels, jams, juices etc. Also the freezing, boiling, smoking and salting are considered the natural food preservatives.

• Citrus Food Preservatives:-

In this section, citrus food preservatives include **citric acid and ascorbic acid** work on enzymes and disrupt their metabalism, leading to the food preservation.

• Sugar and Salt:-

Sugar and salts are the earliest food preservatives, which chops the growth of bacteria effectively. Salt is also used to preserve fish and meat.

2) Chemical Food Preservatives:-

Chemical food preservatives are also being used for quiet some time now. They are seem to be the best and the most effective for longer shelf time. Chemical

Food preservatives are includes:
- Benzoates (sodium benzoates and benzoic acid).
- Nitrites (sulphur nitrites)
- Sulphites (sulphur oxides)
- Sorbates (sodium sorbates and potassium sorbates).

1. Then, there is **ethanal** is a one of the chemical food preservatives which preserve foods, wine, food stored brandly.
2. Unlike natural food preservatives, chemical food preservatives are harmful.

Example:
- Sulphur oxides cause irritation in bronchial tubes.
- Nitrites ~~care~~ carcinogen.

3) Artificial Food Preservatives:-
Artificial food preservatives are the chemical substances that stops or delayed the growth of bacteria and spoilage and its discoloration.
- Types Of Artifical Food Preservatives:

1) Antimicrobial Agents:

In antimicrobial agents comes the benzoates, sodium benzoates, nitrites and sorbates.

2) Antioxidants Agents:

Antioxidants 'are' includes vitamin C, vitamin E, butylated hydroxy toluene (BHT).

3) Chelating Agents:

Chelating agents 'are' includes disodium diamine ethylene tetraacetic acid (EDTA), polyphospates, citric acid.

4) Food Additives:

Some food additives are also used to preserve food. **For example:** Preservatives are used for deterioration of food spoilage.

Harmful Food Preservatives :-

Some food preservatives are harmful for human health.

1) **Benzoates :-**

Benzoates are chemical food preservatives cause asthma, skin rashes and brain damage. It is used in tea, juice, coffee.

2) **Butylates :-**

Butylates cause high blood pressure and cholesteral. It also affect on kidneys and liver function. They are used to fresh pork, cake mixing, potato chips and many more.

3) **Caramels :-**

Caramels are coloring agent that cause vitamin B6 deficiency, genetic defects and cancer. They are used in candies, bread, frozen pizza etc.
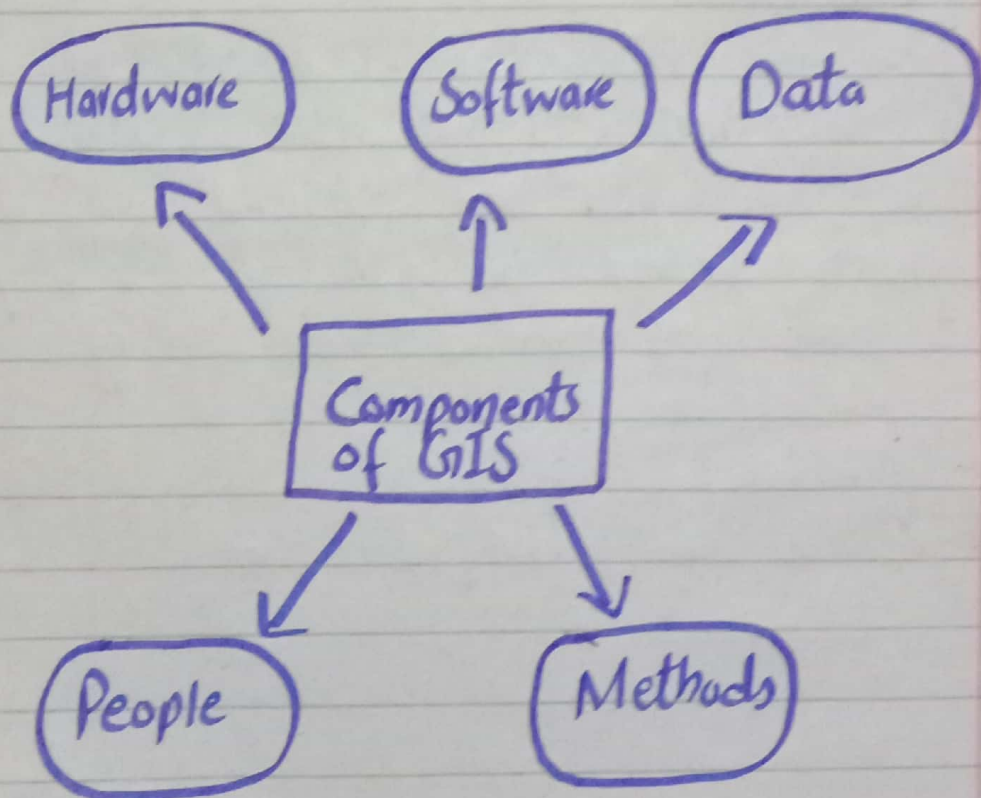
Q3 What is GIS? Describe its components?

1) Definition:
A geographic information system (GIS) is a computer-based tool for mapping and analyzing things that exist and events that happen on Earth.

2) Components Of GIS:
A working GIS integrates five key components:

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  ( Hardware )      ( Software )   ( Data )
       ↖              ↑              ↗
              ┌──────────────┐
              │  Components  │
              │   of GIS     │
              └──────────────┘
            ↙                  ↘
      ( People )            ( Methods )
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1) Hardware :-

Hardware is the computer on which a GIS operates. Today, GIS software runs on a wide range of hardward types, from centralized computer servers to desktop computers used in stand-alone or networked configurations.

2) Software :-

GIS software provides the functions and tools needed to store, analyze, and display geographic information.

Software Components:

1) Tools for the input and manipulation of geographic information.
2) A database management system (DBMS)
3) Tools that support geographic query, analysis, and visualization.
4) A graphical user interface (GUI) for easy access to tools.

3) Data :-

- Possibly the most important component of a GIS is the data. Geographic data and related tabular data can be collected in-house and purchased from a commercial data provider.
- A GIS will integrate spatial data with other data resources and can even use a **DBMS**,

used by most organizations to organize and maintain their data, to manage spatial data.

4) People:-

- **GIS technology** is of limited value without the people who manage the system and develop plans for applying it to real world problems.
- **GIS users** range from technical specialists who design and maintain the system to those who use it to help them perform their everyday work.

5) Methods:-

A successful GIS operates according to a well-designed plan and business rules, which are the models and operating practices unique to each organization.