

Explain complex concepts in simple terms.

Use real-life examples.

Include diagrams and flowcharts for competitive edge.

Discuss practical applications of scientific concepts.

Show all steps and working for calculations.

Use diagrams and graphs

PART II

SECTION I

QUESTION No. 4

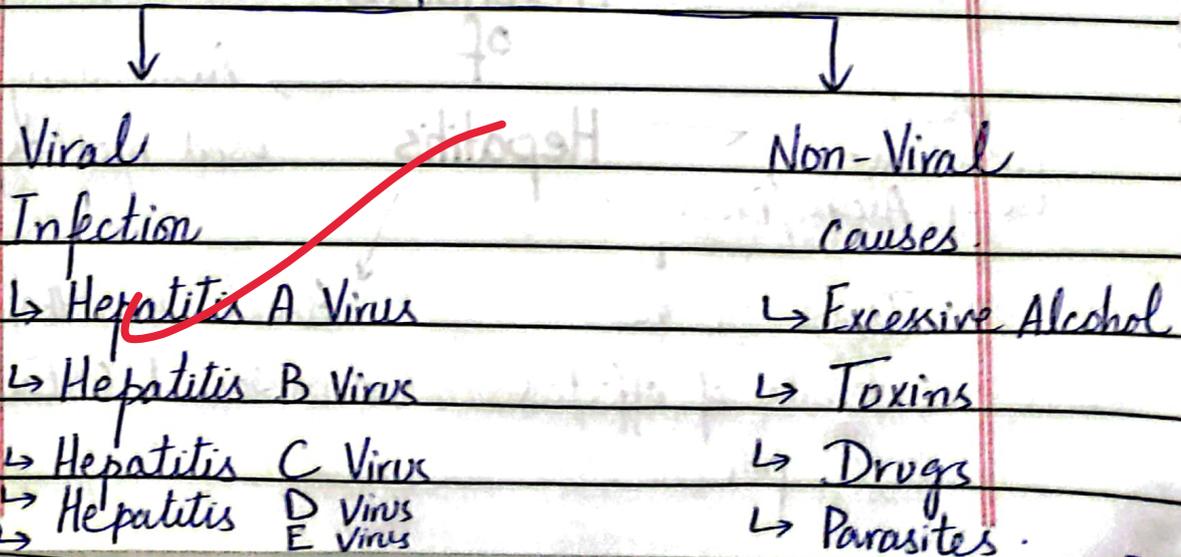
Q. What is hepatitis? Explain its causes and prevention.

Definition

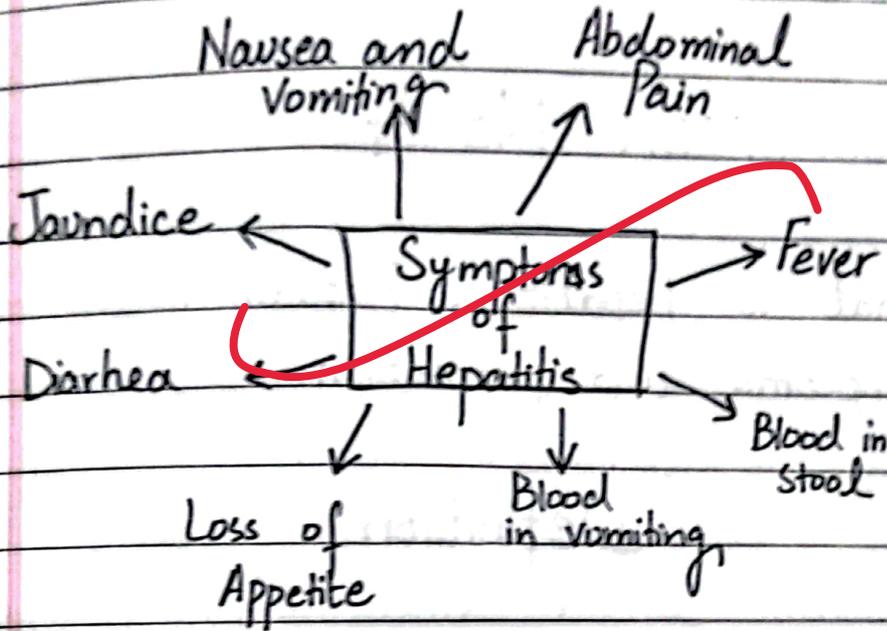
Hepatitis is a viral infection caused by different hepatitis viruses in which the liver of infected person gets inflamed.

Causes

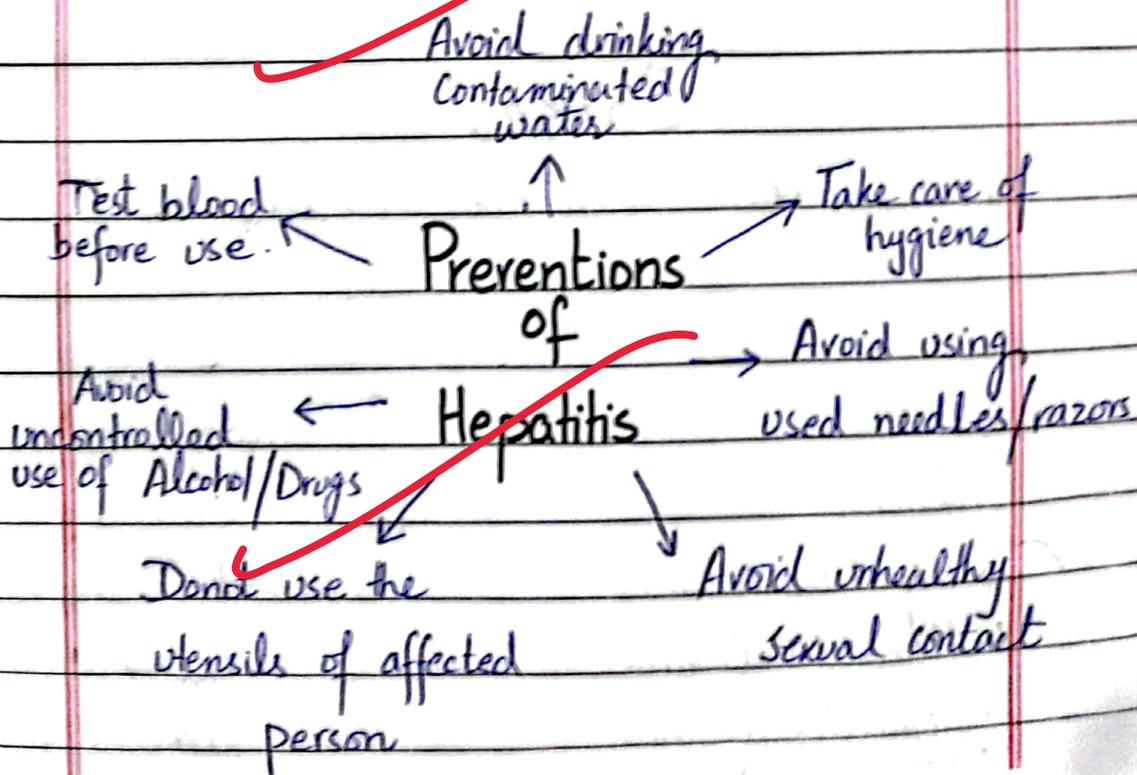
The hepatitis can be caused by



Symptoms



Preventions



b- Elaborate few methods of food preservation?

Defining Food Preservation

It is a process through which food is processed in order to increase the shelf life of food by inhibiting microbial growth and enzymatic reactions.

Methods of Food Preservation

Following are some of the major methods used for the preservation of food:

1- Cooling and Freezing

- i- Refrigeration → keeping food at low temperature to decrease microbial activity
- ii- Freezing

2- Salting and Sugaring

i- Salting → Applying salt on food items to draw out moisture.

ii- Sugaring → Adding or coating food with sugar to decrease microbial activity.

3- Heat Processing

i- Canning

↳ Packing food in air tight containers to prevent air microbes.

ii- Pasteurizing

↳ Method of preserving dairy products.

4- Drying

It is the most commonly used domestic process to preserve food by drying water content through sunlight.

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c- Explain fertilizers? What are their types?

Fertilizers

Fertilizers are substances used to increase the fertility of soil.

They are added to the soil in order to overcome the deficiency of nutrients and minerals required for the healthy growth of plants. Fertilizers can be solids, liquids or in gaseous form.

Types of Fertilizers

There are major two types of fertilizers which are further classified on the basis of elements present in them.

- 1- Organic / Natural Fertilizers
- 2- Inorganic / Artificial Fertilizers

Organic Fertilizers

These fertilizers are naturally present in the soil or they are formed from natural substances. These includes:

- i- Worms
- ii- Peat
- iii- Compost
- iv- Limestone
- v- Phosphates
- vi- Sulphates.

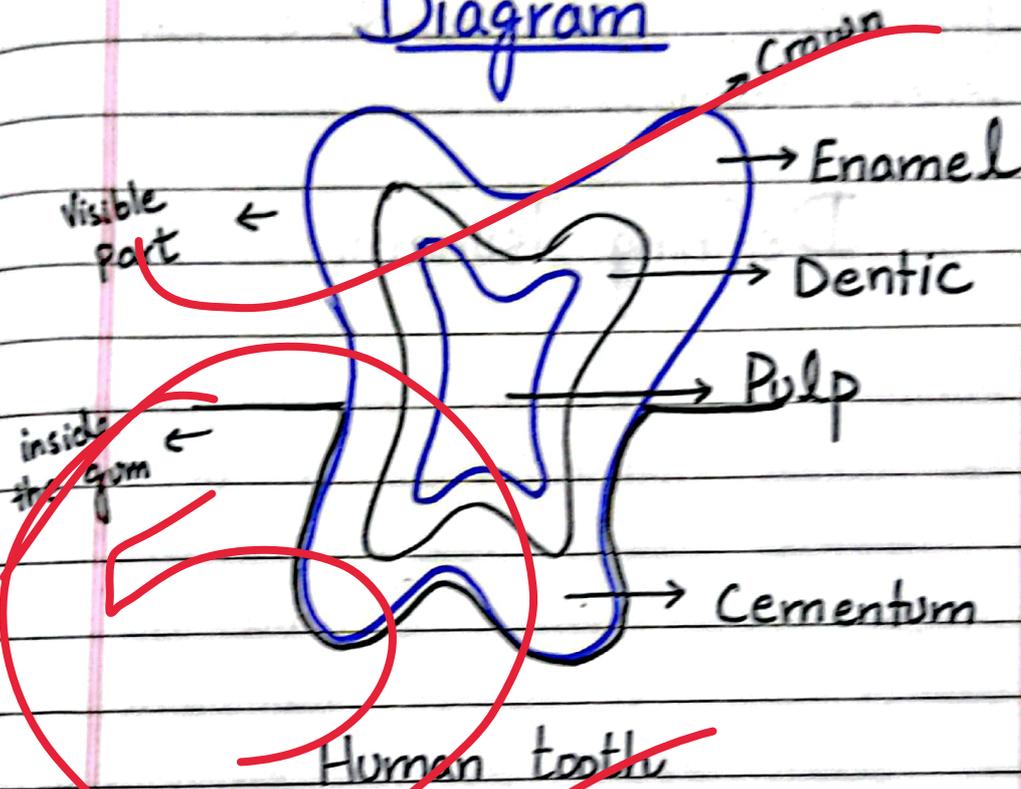
Inorganic Fertilizers

Inorganic fertilizers are mineral fertilizers. They are factory made fertilizers and if used excessively, they can cause damage to plants as well as to human health. These includes:

- i- Nitrates
- ii- Phosphorus fertilizers
- iii- Potash "

d- What is the anatomy of human tooth?

Diagram



i- **Crown:** The outermost layering of the teeth.

ii- **Enamel:** It is present inside the crown

It is very hard. Provide shape to the teeth.

iii- **Dentic:** Bulge of soft tissue present under enamel

iv- **Pulp:** Innermost part of the tooth

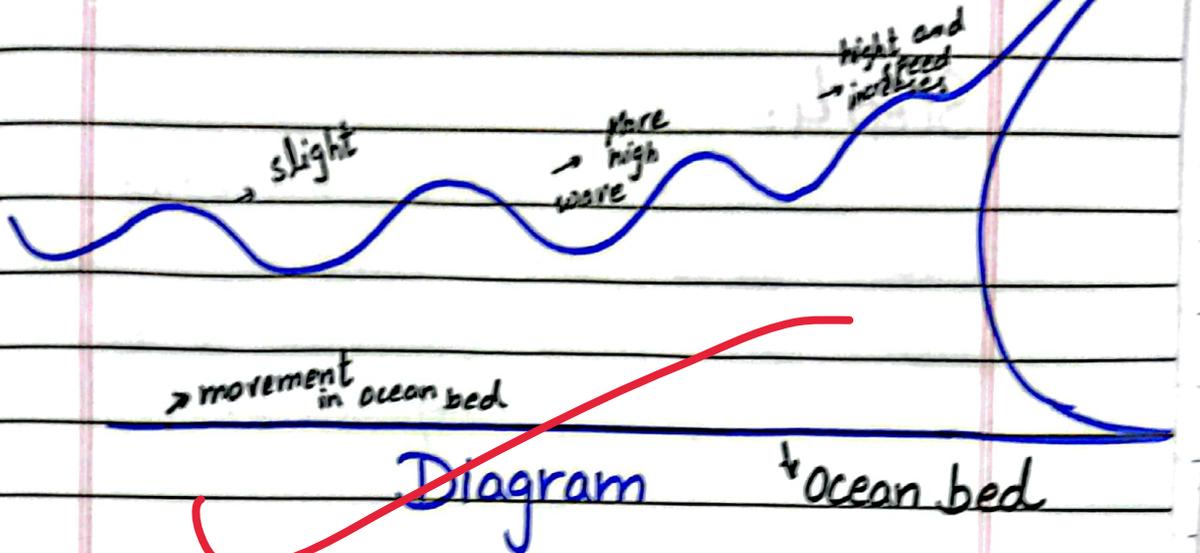
v- **Cementum:** Root of the tooth which is present in the gum.

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very high waves with high speed which are disastrous



Steps in the generation of Tsunami

Step 1:

Movement of ocean bed due to landslid, volcanic eruption or earthquake causes the disruption in whole water column.

Step 2:

Waves start generating in water which start gaining speed.

Step 3:

The altitude of these waves increases while the speed decreases.

Step 4:

These fast moving waves may touch any coastal region and can prove disastrous to the nearest living population.

x — x

Example of Tsunamis

2011 in Japan
2018 in Indonesia

x — x

- C- Discuss environmental pollution. What could be its harmful effects? Give few measures to curb it.

Defining Environmental Pollution

Environmental pollution refers to the degradation of environment from the

and standard definition of clean environment. It is basically the introduction of harmful substances to the environment which are hazardous to health.

Harmful effects of Environmental Pollution:

1- Impacts on Humans

↳ Lowered life expectancy
ie. a person living in Lahore has 4 year less life expectancy than any other citizen.

↳ Respiratory issues

↳ Cancers and Tumors

↳ Premature births and deaths

↳ Various waterborne diseases

↳ Skin cancers etc.

2- Harmful effects on Ecosystem

- ↳ Biodiversity loss
- ↳ Extinction of certain species
- ↳ Soil degradation
- ↳ Water degradation
- ↳ Creation of Dead zones in ocean etc.

3- Harmful effects on Climate

- ↳ Increased Global warming
- ↳ Extreme weather events
- ↳ Disruptive weather cycle
- ↳ Increased natural disasters

Measures to Curb Environmental Pollution

- i- Reduced Carbon emission
- ii- Limited used of CFC's

ii- Using renewable energy resources

iv- Clean production of energy

v- Through solid waste management

vi- Use of filtration systems for factories and industries

vi- Promoting sustainable agriculture

vii- By preserving forests, promoting reforestation and limiting deforestation

viii- Creating Urban green spaces

ix- Abiding by national and international agreements for the prevention of environmental pollution.

These are some of the measure which, if adopted, can help help in reducing and curbing environmental pollution.

d- What is wireless communication?
Briefly explain the working of a satellite.

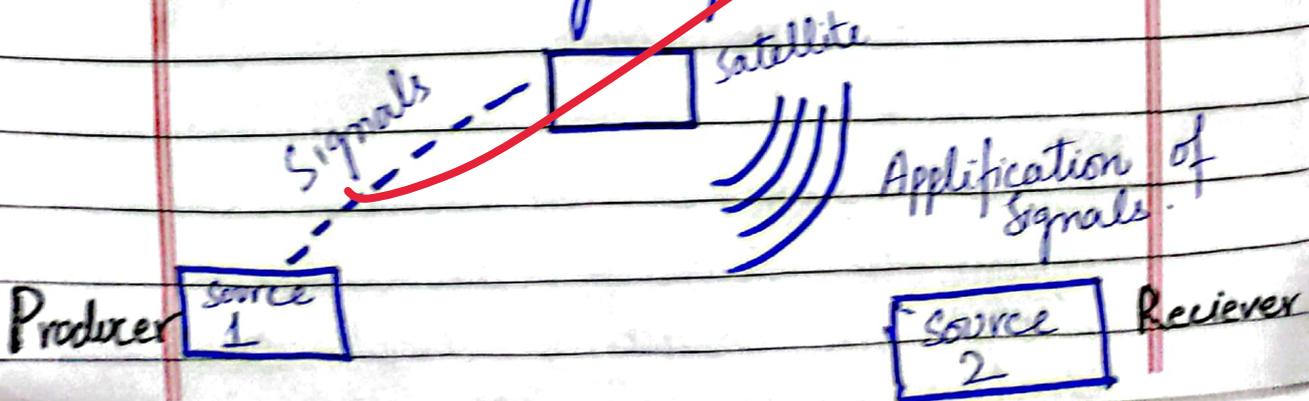
Wireless Communication

As the name suggests, wireless communication is the conduction of communication without the use of cable networks.

Wireless communication uses electromagnetic waves for the conduction of sound signals or light waves.

Example: Mobile phones, TV remotes, portable devices etc.

Working of Satellite



Satellites take signals in the form of radio or electromagnetic waves, convert those signals in high frequency, and direct it to the receiver.

So, the workings of a satellite is simple, it takes signals from producer source, amplifies the magnitude and frequency of the signals and redirect the signals to the receivers.



SECTION II

Question No 6

d. Identify the missing numbers.

i- 13, 24, 46, 90, 178, 354

ii- 5, 6, 9, 14, 21, 30

c- Diameter of a circle is 6 cm.
Find circumference and area of circle.

$$d = 6 \text{ cm}$$

$$A = ?$$

$$C = ?$$

$$A = \pi r^2$$

First, we find radius 'r'

$$r = d/2$$

$$r = 6/2$$

$$r = 3$$

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$$A = \pi r^2$$

$$= 3.14 \times (3)^2$$

$$= 3.14 \times 9$$

$$= 28.26$$

$$\begin{array}{r} 3.14 \\ \times 9 \\ \hline 28.26 \end{array}$$

So, Area of a circle having diameter = 6 cm will be 28.26 cm.

Now, to find circumference of circle

$$C = 2\pi r$$

$$= 2 \times 3.14 \times 3$$

$$= 18.84$$

$$\begin{array}{r} 2 \\ 3.14 \\ \times 6 \\ \hline 18.84 \end{array}$$

So, the circumference of a circle having diameter 6 cm will be 18.84 cm.

b- A man ordered pizzas of small, medium, and large size for 18 persons - - - - -

Find the price and weight of a total pizzas.

Weight of one slice = 40 gm
Total 18 slices, as one slice for each person.

So, the weight of combined pizza will be

$$\begin{array}{r} 40 \\ 18 \\ \hline 320 \\ 40 \times \\ \hline 720 \end{array}$$

Total weight = 720 grams.

a- The sum of 3 digit is 15
- - - - ?

Let first number = x

2nd number = y

3rd number = z

Sum of 3 numbers

$$x + y + z = 15$$

Given data.

$$y + z = 12 \quad \text{--- (1)}$$

$$y - z = 2 \quad \text{--- (2)}$$

Adding both sides of eq (1) and (2)

$$(y + z) + (y - z) = 12 + 2$$

$$y + \cancel{z} + y - \cancel{z} = 14$$

$$2y = 14$$

$$y = 14/2$$

$$y = 7$$

Adding, the value of y in eq (1)

$$y + 2 = 12$$

$$7 + 2 = 12$$

$$2 = 12 - 7$$

$$2 = 4$$

Hence,

The second number = 7

3rd number = 4

We know that sum of number = 15

From here, we can find the value of x

$$x + y + 2 = 15$$

$$x + 7 + 4 = 15$$

$$x + 11 = 15$$

$$x = 15 - 11$$

$$x = 4$$

Hence the three digits are 4, 7, 4

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Question No 8

a- The width of a rectangular room is 60% of its length. What are the room dimensions.

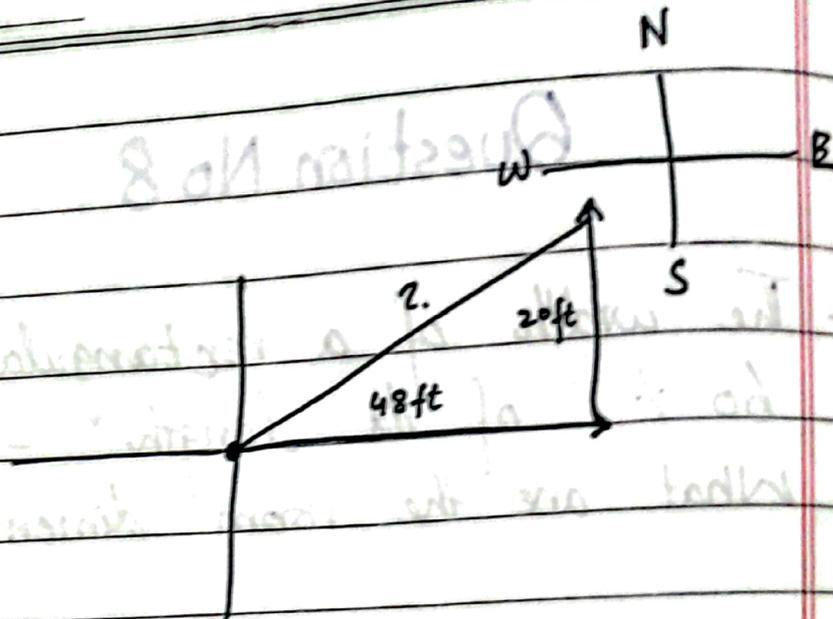
$$\begin{aligned}\text{Width} &= 60\% \text{ of Length} \\ \text{Length} &= 15 \text{ ft}\end{aligned}$$

$$\begin{aligned}\text{So, Width} &= \frac{60}{100} \times 15 \\ &= 9 \text{ ft}\end{aligned}$$

Hence, the Length of the room is 15 ft while width is 9 ft.

X X

b-



Applying Pythagoras Theorem

$$(\text{Hyp})^2 = (\text{Base})^2 + (\text{Perp})^2$$

$$(\text{Hyp})^2 = (48)^2 + (20)^2$$

$$\begin{aligned} (\text{Hyp})^2 &= 2304 + 400 \\ &= 2704 \end{aligned}$$

By taking square root on both sides

$$\sqrt{(\text{Hyp})^2} = \sqrt{2704}$$

$$\text{Hyp} = 52$$

If veena travelled straight from the starting position, she would have to cover 52 ft.

d- 37 people like vegetable pizza -
- - - - Calculate what is the probability that a person likes chicken pizza?

$$\text{Prob}(E) = \frac{\text{No of ways of occurrence}}{\text{Total possible outcomes}}$$
$$= \frac{25}{65}$$

$$\text{Prob}(E) = \frac{5}{13}$$

Hence, the probability that person like chicken pizza is $5/13$.