QUESTION NO: 2

(a)

LIPIDS

Lipids are naturally occuring organic compounds, commonly known as oil and fats. The basic unit of lipids is 'Triglycerides'. There are various classes of lipid among which phospholipids are found in cell membranes of organism. Phospholipids contains glycerol and fatty acids.

Major types of lipids:

- → Saturated Fats
- → Trans fat
- → Unsaturated fats → Monosaturated
  → Polysaturated
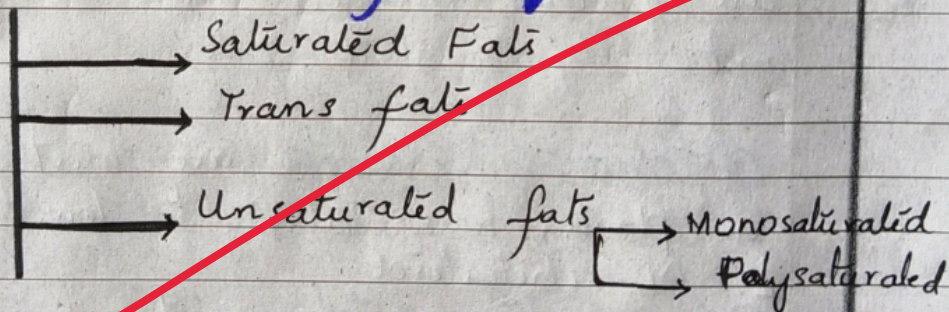
Saturated lipids

Saturated lipids are known as 'Solid fats', mostly found in animals food, milk, cheese, meat, poultry and fish. It is also found in some oils. Saturated fats raise cholesterol. A health diet Contains less than 10% Saturated fat.

Trans fat

The saturated fat that has been changed by hydrogenation, in order to increase shelf life of a lipid is known as Trans fats. They mostly found in processed food.

Unsaturated fats.

They are liquids at room temperature and f mostly found in plants. They improve cholesterol level. Unsaturated fats are further divided into Monosaturated and polysaturated fats.

Mono saturated are mostly found in plants, have ability to lower the bad LDL cholesterol.

Poly Saturated mostly found in sea food. Omega 3 and 6 are examples

Functions of lipids:

Lipids serve as reserve energy of body, are important constituent of cell membrane where they regulate membrane permeability. They also serve as source for vitamins A,D,E,K. Some lipids prostaglandins and steroid harmones serve as cellular metabolic regulators.

(b)

Measures for Energy Conservation and its Sustainable Use :

Measures for Energy Conservation :

There are various measures that can be taken in order to conserve energy. Some of the important measures are discussed below.

1) House hold Practices

Use of energy efficient appliances in house holds like LED bulbs. Other appliance may use the solar energy as it is renewable source of energy.

Industrial and Commercial measures:

Industries should be upgrade to energy efficient machinery, that use less energy. Industrial and commercial measures also includes shifting the machinery on renewable energy resources, such as solar and wind energy.

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Minimize use of Energy in Transportation

Instead of using personal vehicles, use of public transport should be increased. Moreover electric vehicles can also be used. Walking or cycling can also be promoted.

Awareness in the People

By spreading awareness in public regarding safe use of energy and its sustainable use, the maximum output may be produce in context of conservation of energy. The Public should be aware regarding use of renewable energy resource.

Renewable Energy resources Usage :-

Developed countries are using most of renewable energy resources like wise, in developing countries the use of renewable energy resource can be promoted, in all areas. Such as installment of solar panels and wind turbines or utilization of biogas.

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Government Policies Implementation

Strict government policies must be introduced in order to tackle the misuse of energy. Like wise, government should enforce energy efficient building codes. Morever, Subsidies for renewable energy systems using factories should be offered.

(C)

⑥ Hydrogen bonding:

The bonding that exists between a hydrogen atom that is Covalently bonded to an electronegative atom Such as Oxygen, nitrogen or flourine and another electronegative atom with lone pair of electrons.
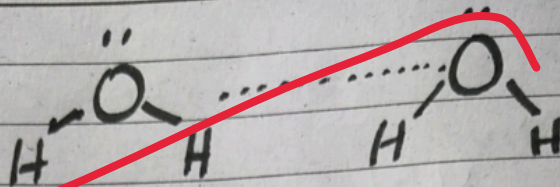
Example

$$H \quad \overset{\cdot\cdot}{\underset{\cdot\cdot}{O}} \quad H \qquad \text{Water.}$$

→ lone pair

Covalently bonded
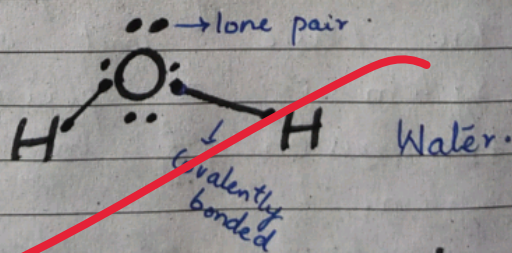
Intermolecular Hydrogen bonding

The hydrogen bonding that Occurs between molecules, for example water
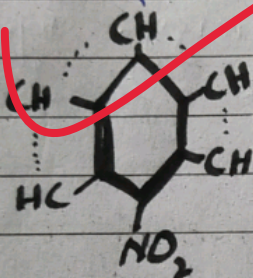
Tip Top Classic

molecules.

Intra molecular hydrogen bonding

It occurs within a single molecule, for example (O- nitrophenol)

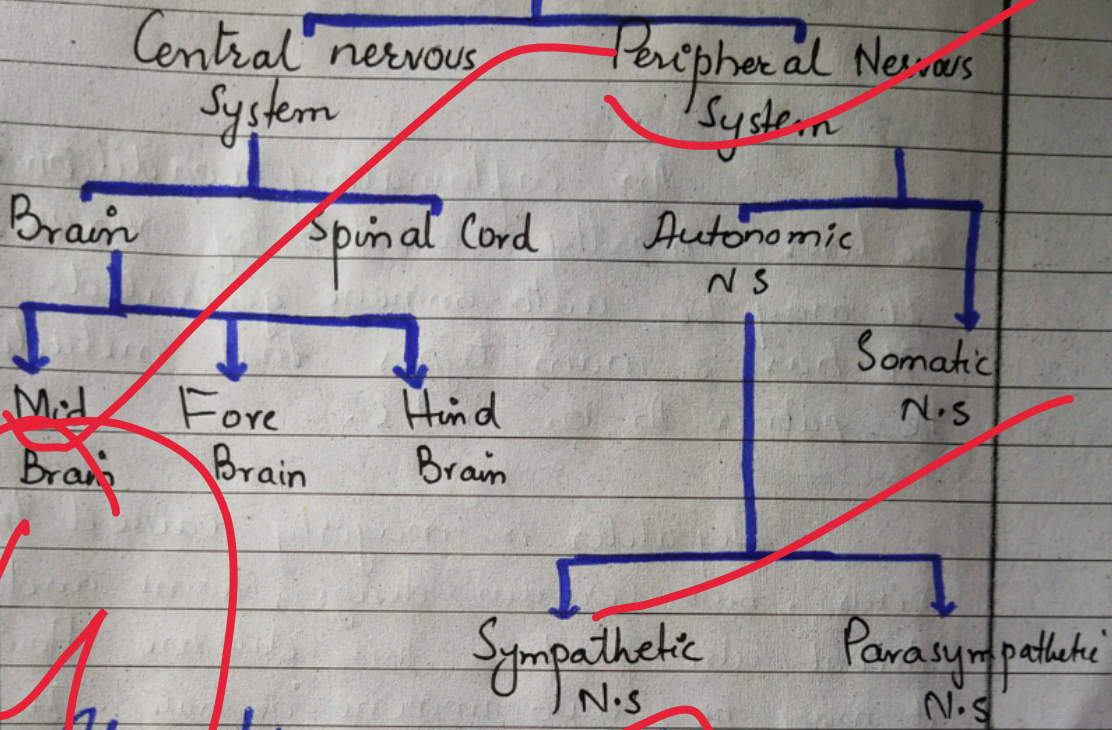## d) Nervous System of the human body:

The Nervous system is a complex network of nerves and cells (neurons) responsible for transmitting signals between different parts of the body. The basic unit of nervous system is a specialized cell for transmission of information in nervous system.

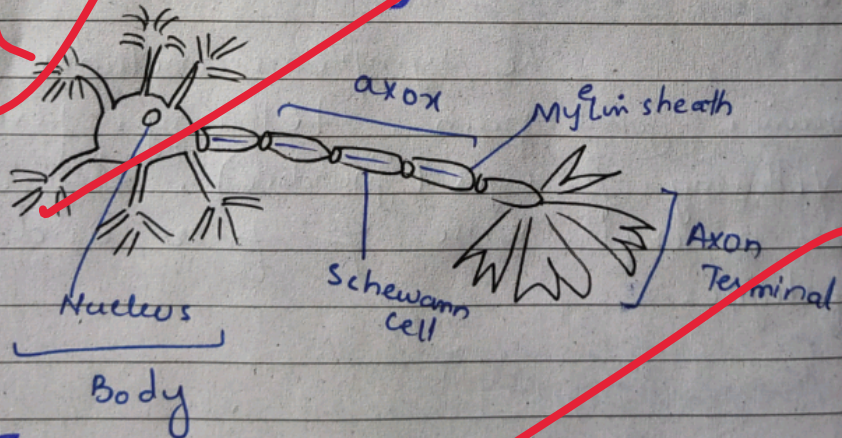### Importance of Nervous System

It cordinates body functions and responses to the environment, maintain homeostasis, enables cognition, emotion and memory.

Classification ONervous System :

Central nervous System

Peripheral Nervous System

Brain — Spinal Cord

Autonomic N S

Mid Brain — Fore Brain — Hind Brain

Somatic N.S

Sympathetic N.S — Parasympathetic N.S

Structure of Neuron

axox — Myelin sheath

Axon Terminal

Nucleus

Schewann Cell

Body

Function of Neurons

Neuron receives sensory input, that is called stimuli, then it processes the interprets information, finally it send motor responses to the effectors that may be muscles or glands.

QUESTION NO: 04

Hepatitis

An inflamatory condition of the liver, mostly caused by virus. It may be auto immune generated. It has 3 main types that includes Hepatitis A, B, and C.

Causes :-

Hepatitis is majorly caused by virus, but certain drugs, toxins and alcohol also produce this disease. However it may be auto immune generated. It may be a contagious disease too.

Symptoms :-

The symptoms includes muscle pain, joint pain, lethargy, fever yellowing of eyes (jaundice), depression of general sense of fever and muscle fatigue.

Prevention :-

There are various precautionary measures that can be adopted. The safe use of blood transfusion, vaccination, eliminating unnecesary usage of injections and by taking other precautionary statements, one can be prevented from Hepatitis.

Methods Of food preservation

The are various methods of food Preservation, few are discussed below.

Preservation by heating

Most bacteria are killed in range 82 to 95°C, So Pasteurization and Canning methods can be adopted. e.g milk.

Preservation by drying

Drying comes under catagory of physical methods, by dehydrating the food, microbial growth can be inhibited. e.g dried fruits

Preservation by reducing Temperatures:

freezing is also a method that can be used to preserve food. It slows down the microbial activity by lowering the temperature e.g frozen vegetable

Fermentation:-

It Uses beneficial microbes to preserve food e.g Yogurt, pickles.

(C)

Fertilizers

The substance added to soil to supply essential nutrients for plant growth.

Types of Fertilizers

Nitrogenous fertilizers
It provide nitrogen, essential for growth of leaves. E.g Urea, Ammonium nitrate.

Phosphatic fertilizers
It provide phosphorus for root development and flowering. Eg Super phosphate diammonium phosphate.

Potassic fertilizer
It supply potassium for Overall plant growth. Ex: potassium Sulphate and potassium chloride

Micronutrient fertilizer

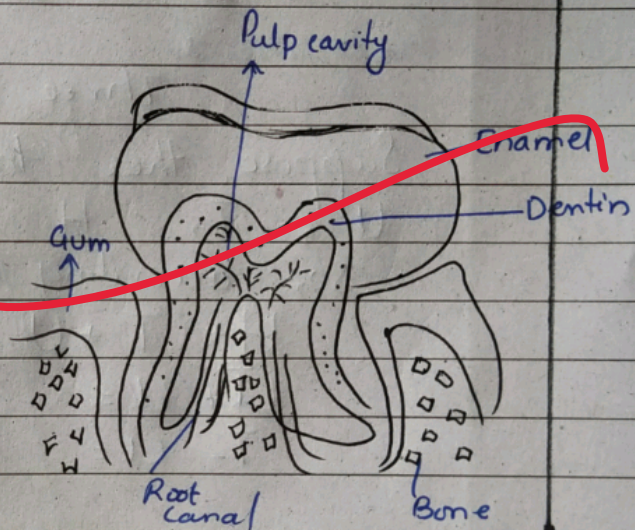It provides elements like Zinc, Iron, and boron. Example Zinc sulphate
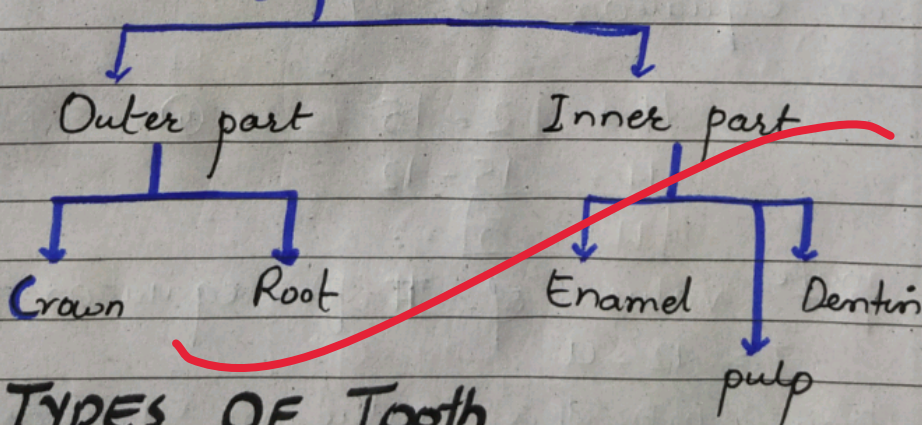
(d)
Anatomy of human tooth

Tooth

A hard white part in mouth, that helps in chewing, bitting and speaking properly.

Structure of the Tooth

Pulp cavity
Enamel
Dentin
Gum
Root Canal
Bone

Parths of Tooth

- Outer part
  - Crown
  - Root
- Inner part
  - Enamel
  - Dentin
  - pulp

TYPES OF Tooth

1- In cisors
2- Canines
3- Molars

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$15 - u + u = 15$

SECTION II

6(a)

Suppose the three digit number is $H \ T \ U$

According to Question

$$H + T + U = 15 \quad \text{—①}$$
$$T + U = 12 \quad \text{—②}$$
$$T - U = 02 \quad \text{—③}$$

Required

$$HTU = ??$$

Solution

from equation 3 we have,

$$T = 2 + u$$

put value of T in equation ①

$$2 + u + u = 12$$
$$2 + 2u = 12$$
$$2u = 12 - 2$$
$$u = \frac{10}{5} = 5$$
$$\boxed{u = 5}$$

put value of U in equation 2.

$$T + 5 = 12$$
$$T = 12 - 5$$
$$\boxed{T = 7}$$

put value of T and u in equation no: 01

$$H + 7 + 5 = 15$$

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H = 15 - 12

$\boxed{H = 3}$.

The number is 375.

QUESTION NO: 06 (C)

Data:

diameter = 6 cm

Required

Circumference = ?

area = ?

Formula

Circumference = $2\pi r$

area = πr^2

Solution

radius = $\dfrac{diameter}{2}$ = $\dfrac{6}{2}$ = 3 cm

(1) Circumference = $2 \times 3.14 \times 3$

$\boxed{C = 18.14 \text{ cm}}$

(ii) Area = πr^2

= $3.14 (3)^2$

= 3.14×9

$\boxed{Area = 27.14}$

QUESTION NO: 06 (A)

Missing number

① 13, 24, 46, 90, 178, __354__.

$13 \times 2 - 2$ $24 \times 2 - 2$ $46 \times 2 - 2$ $90 \times 2 - 2$ $178 \times 2 - 2$

② 5, 6, 9, 14, 21, 30

$+1$ $+3$ $+5$ $+7$ $+9$

QUESTION NO: 06 (B)

Data :-

no: of Person = 18

no: of Slice / person = 1

ratio of {Small, medium, large = 2:3:4

weight of slide = 40gm

Price of Smaller Pizza = 320gm

Required

Price of total pizza = ?

Weight " " " = ?

Solution

Let number of slice be x

then $2x + 3x + 4x = 18$

$9x = 18$

$x = 2$

no: of slices of each pizza

Small $2 \times 2 = 4$

medium $3 \times 2 = 6$

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Large = $4 \times 2 = 8$

So,

Total weight = Total slice × weight of slice.

= 18×40

= 720 gm

a) | Total weight = 720 gm |

Now, price of smaller pizza = 320

4 slices = 320

1 slice = 80

18 slices = 18×80

= 1440

b) | Total price = 1440 |

QUESTION NO: 8

Data

width = 60% length

length = 15 ft

Required what o.

Dimensions of room = ??

Solution

width = 60% of length.

Length = 15 ft.

60% of 15 = $\frac{60}{100} \times 15 = \frac{45}{5} = 9$

width = 9.

Tip Top Classic
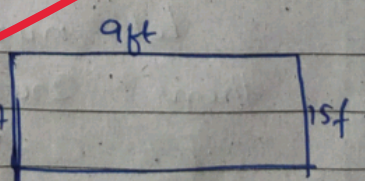
Dimensions of room = $2(15+9)$
Perimeter

$$= 2(24)$$

$$\boxed{\text{Perimeter} = 48}$$

Area of the room

$$A = 15 \times 9$$

$$\boxed{A = 135}$$

QUESTION NO: 08 C

Data :

Average marks of students = 52.15
Correct marks of student = 85
mark taken = 49

Required

Average marks of class = ??

Solution

Let number of student = n

Average = $\dfrac{\text{Total marks}}{\text{no: of students}}$

To find Total mark ,

Total mark = Average × no: of student

$$= n \times 52.15$$

now adjust the error

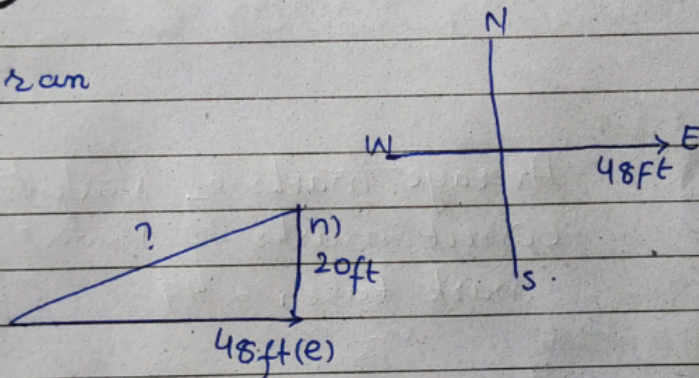Correction = $85 - 49 = 36$

Total marks now = $52.15n + 36$

Now take average after correction

Average $= \dfrac{52.15n + 36}{n}$

$\boxed{\text{Average} = 88.15}$

QUESTION NO: 8b

Fast ran

$$H^2 = B^2 + P^2$$
$$= (20)^2 + (48)^2$$
$$400 + 2324$$
$$H^2 = 2724$$

$\boxed{H = \sqrt{2724}}$ Total distance covered

If she would ran Straight

QUESTION 8 D

Data

Vegetable pizza = 37
Chicken " = 25
Do not like = 3

Req:

Probability of chicken pizza likes = ?

Formula

$$Probability = \frac{no: \text{ of favorable outcomes}}{Total\ no}$$

Solution

$$P = \frac{\overset{5}{\cancel{25}}}{\underset{13}{\cancel{65}}}$$

$$P = \frac{5}{13}$$

out of 13 person, 5 person will like chicken pizza

$$P = \frac{5}{13} \times 13$$

$$P = 38.46\ \%$$