

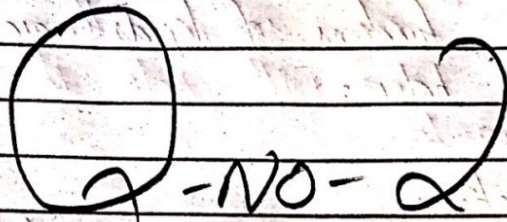
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PART - II

SECTION - I



(a):

LIPIDS:

Lipids are fats which are required to the body for its proper functioning.

Micro Nutrient:

It is one of the micro nutrients which the body require in excess for proper functioning.

Major Types:

Lipids are of various types. These are

discussed below:

- (1) Highly complex structure lipids
- (2) Smaller lipids

FUNCTIONS:

The functions of lipids are discussed below:

(1) Lubrication:

It helps in lubrication of muscles and joints.

(2) Source of energy

It is an instant source of energy for the body.

(3) Transport of nutrients

It also helps in the transport of vital nutrients in the body.

(4) Helps in bolus carrying

It also helps in smooth carrying of "Bolus", so that it doesn't get stuck somewhere in the

body.

(b):

ENERGY CONSERVATION

METHODS:

There are several methods for energy conservation. Few of them are being mentioned below:

1. Switching off lights when not in use
lights which are not required and are not in use, shall be switched off timely, in order to conserve energy.
2. Using public transports
Using public transport rather than private transport also helps in conserving substantial amount of energy.
3. Using lesser with technologies
The newly advanced technologies, which uses lesser

energy as compare to older technologies, if used, will also help in conservation of energy.

4. Wearing proper clothes rather than electric appliances.

Wearing one extra jacket in winters can reduce the use of heaters and will help in energy conservation.

Sustainable Use of Energy:

1. Non renewable to Renewable Energy sources

Using renewable energy sources like Sun, wind, and thermal energy, rather than ^{using} non renewable energy sources.

2. Using Centralized Heating and Cooling System.

Centralized heating and cooling system in buildings will ensure optimal temperature and will avoid any extra use of appliances for normalizing temperature.

3. ^{Electric} Using Public Transport Systems

This will help in ensuring lesser use of fossil fuels in the longer run and will be environment friendly as well.

(C)

Hydrogen Bonding:

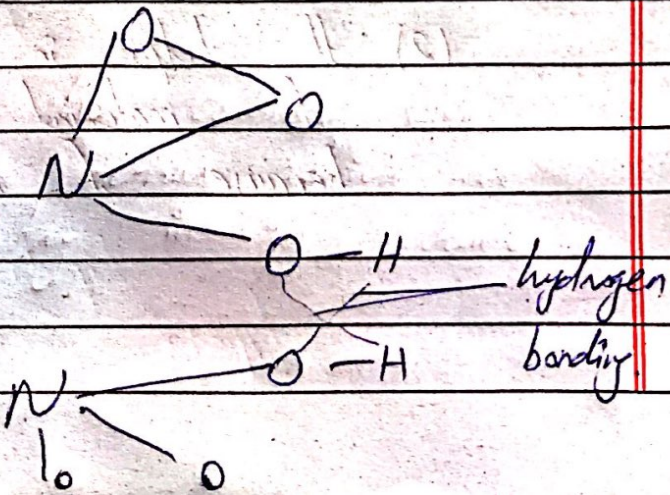
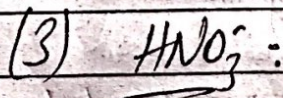
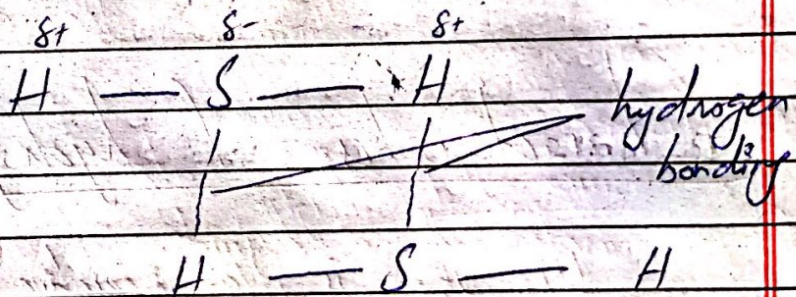
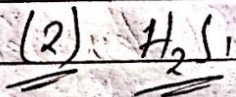
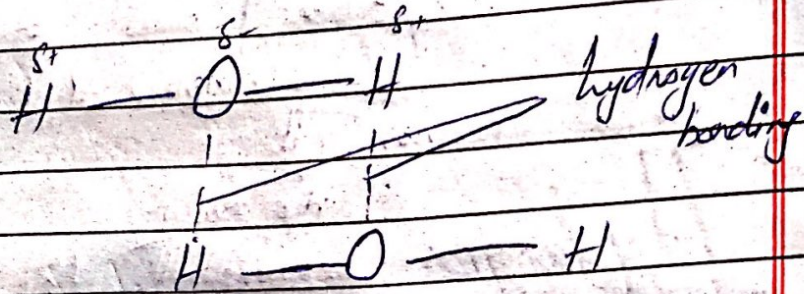
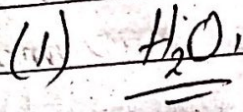
"It is the polar bonding between hydrogen and any other atom which is less electro-negative in nature."

Characteristics of hydrogen bonding

(1) It is a relative weaker bond as compare to ionic and covalent bonding.

(2) It helps in dissolution of material in water because of hydrogen bonding.

EXAMPLES:

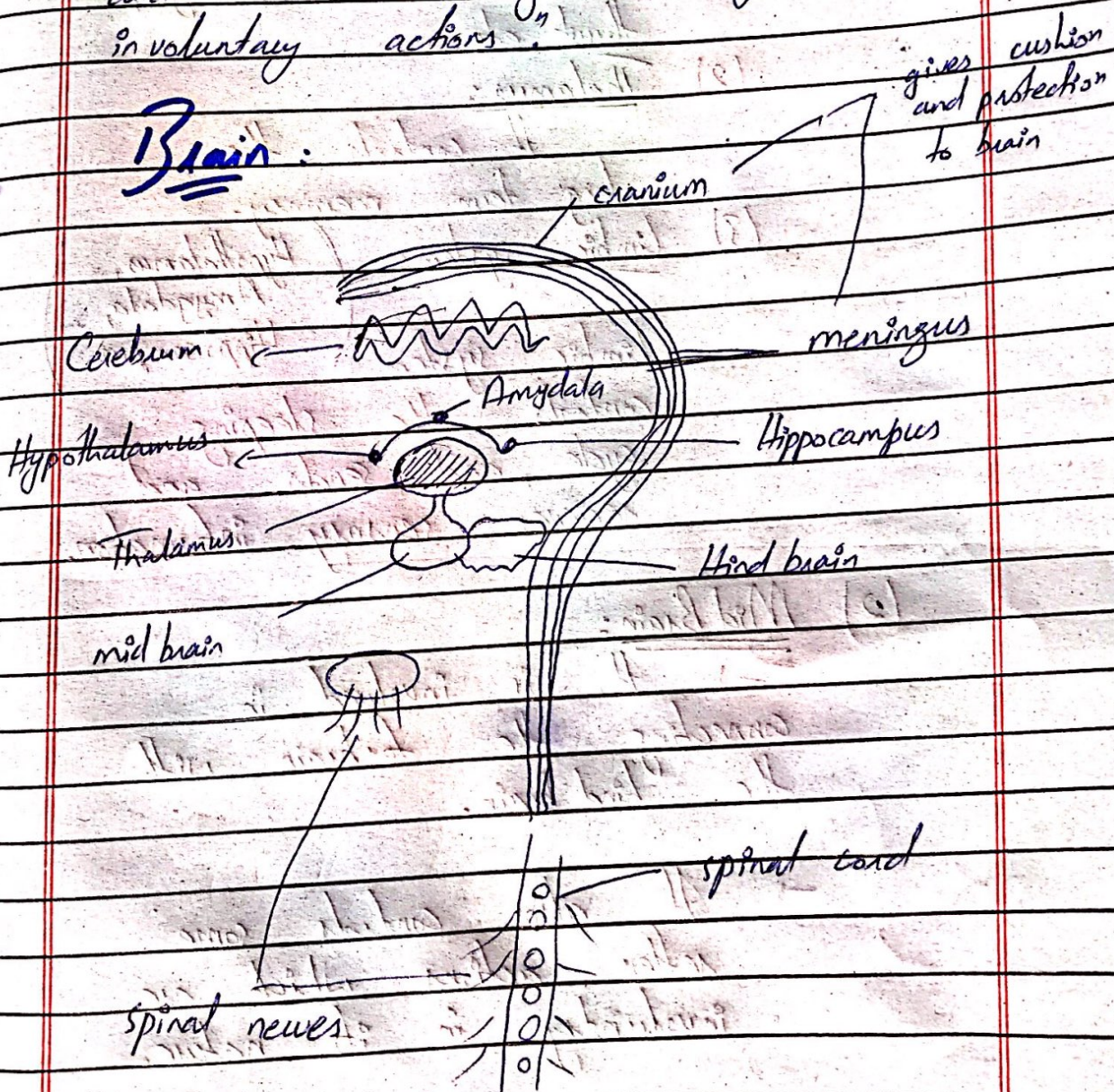


(d):

Nervous System:

"It helps in carrying information to different parts and in controlling voluntary and involuntary actions."

Brain:



Brain is the controlling authority of the body. It consists of three parts:

(1) Fore brain: — frontal portion of brain

It is further subdivided into three parts:

(1) Cerebrum:

It controls hunger, thirst etc.

(2) Thalamus:

It controls the long term memory.

(3) Limbic system: (Hypothalamus, Amygdala, Hippocampus)

limbic system controls the sleeping cycle, and sends and receives sensory information.

(2) Mid Brain:

→ It is involved in connecting the fore brain with the hind brain.

→ It also controls some reflex actions which are involuntary in its nature.

(3) Hind Brain:

It helps in controlling long term memory and also connect rest of the body with the brain.

Spinal Cord:

Spinal cord also helps in controlling some involuntary actions when the mind is busy somewhere else for a short time.

Q - NO - 3:

(a):

Sun:

Sun is the biggest star in our solar system. It has the highest weight, due to which it keeps all other planets revolving around itself.

Energy process taking place at

Sun:

Fusion reaction takes place at Sun. The abundant amount of ~~Helium~~ ^{Hydrogen} gas present on its surface combine to form helium.

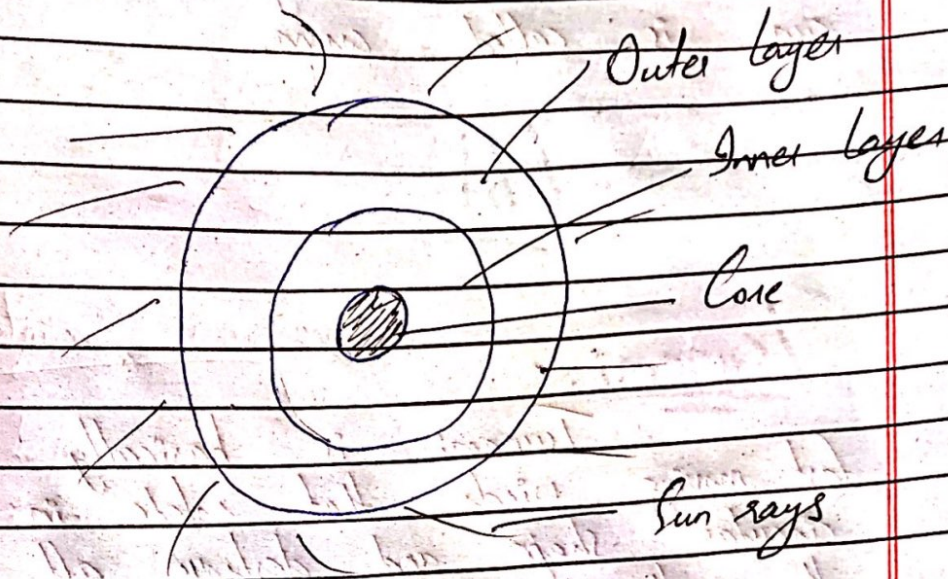
Structure of Sun:

The Sun is mainly made up of two layers:

- (1) Inner layer
- (2) Outer layer

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Diagram:



Core:

The core contains solid layer due to its high density despite the extreme temperature found there.

Inner layer:

Temperature is quite high here, due to which this layer is in molten form.

Outer layer:

It is solid in nature and the temperature is a bit lesser here.

Corona:

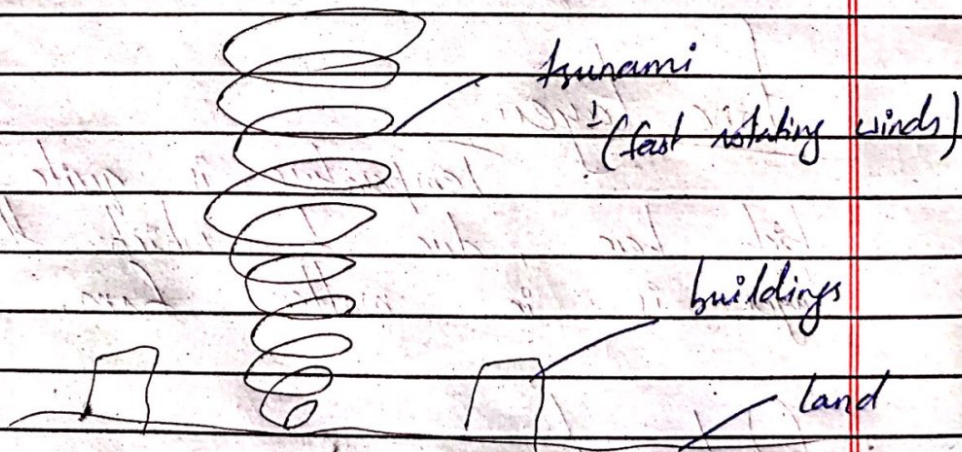
The outermost layer of the sun is called corona.

(b):

Tsunami:

Tsunami is basically fast moving winds that rotate in circular shape and destroys all the things that comes in its way.

Diagram:



How is it generated:

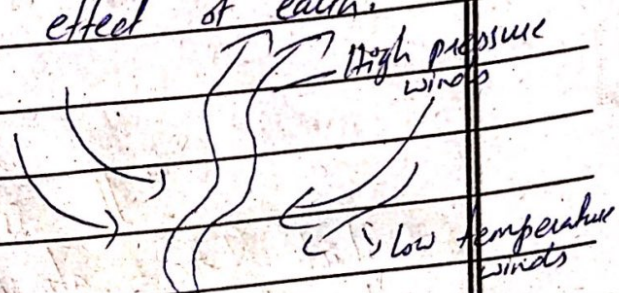
It is generated because of two reasons:

(1) Due to pressure difference

being created.

(2) Coriolis effect of earth.

(1) Pressure Difference



It is when high temperature winds try to move upward, and in turn, low pressure winds takes its place.

(2) Coriolis Effect of Earth:

It is the effect which causes air to rotate clockwise in the northern hemisphere and anticlockwise in the southern hemisphere of earth.

(3) Earthquake

(4) Collision of tectonic plates.

Examples:

Tsunamis in Japan, Indonesia etc.

(C):

Environmental Pollution:

"It is the condition in which the atmosphere contains pollutants to the extent that disturbs the healthy lifestyle of living organisms."

⇒ It is also about disturbance in the natural setting of the atmosphere to the extent that remains harmful to humans.

Reference: "World Health Organization"

Effects of Environmental Pollution

(1) Effects on Plants

The natural process of plants are being disturbed. Their photosynthesis, reproduction and all other processes are disturbed due to environmental pollution.

⇒ A lot of plants are unable to

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uptake minerals from soil due to it. ~~Because~~ It is ultimately resulting in their death.

(2) Effects on humans:

A lot of humans are dying due to it. It is causing heat strokes due to which a lot of people had already died.

⇒ It is also resulting in asthma and other lung diseases.

(3) Effects on Aquatic life:

A lot of species are affected due to it in the oceans. These affected species also become part of food chain, which in return affect others as well.

(4) Food shortages:

A lot of agriculture processes are being affected, which ends up in food shortage.

(5) Economy loss:

Loss of cash crops means loss

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of economy.

Measures to curb it:

(1) Shifting to renewable energy sources
Shifting from non renewable energy sources to renewable energy sources will ensure lesser emissions of harmful gases to environment.

(2) Ban on old cars:

Old cars are resulting in more emissions, so either they shall be banned or taxed heavily, in order to avoid its usage by public.

(3) Channelizing emissions from industries

The industries shall be pressurized to emit its ~~of~~ waste after its proper treatment.

(4) Agricultural wastes shall be curbed,

Agricultural wastes shall not be allowed to enter water directly before treatment because they contain pesticides and other chemicals.

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(5)

which are harmful to aquatic life.

(5) Public transport system shall be made and that too shall be electric.

(6) Solid waste shall be treated properly to avoid harmful gases being emitted from its burning.

(d):

Wireless Communication:

"It is a type of communication in which messages are communicated with the help of electromagnetic rays rather than through cables and other means."

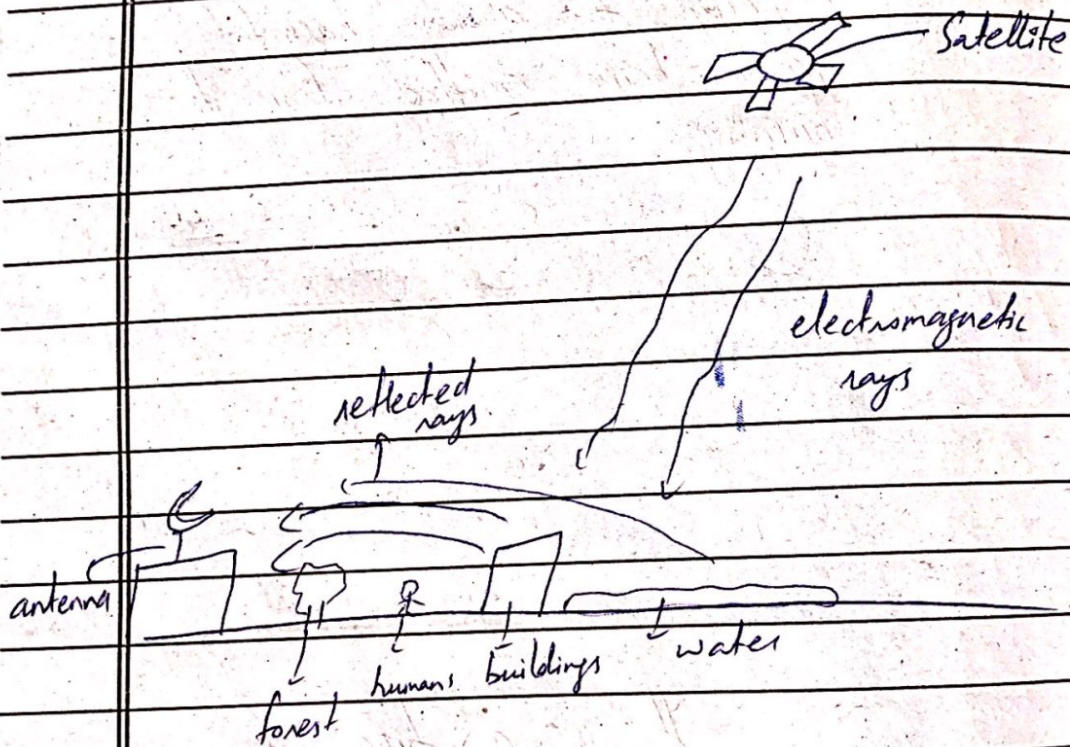
Satellite:

Satellite is an artificial

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object that travels around the earth for various ~~part~~ purpose like information transferring etc.

Diagram:



Working of a Satellite:

(1) A satellite is launched and made to rotate around the earth under the gravitational force of the earth.

(2) Satellite emit electromagnetic

radiation towards the earth.

(3) These rays are then reflected from the various earth surfaces.

(4) The reflected rays are then received by the antenna present at the receiver.

(5) The rays are then processed at various levels and different information is being extracted out of it then.

SECTION - II

Q NO - 6

(a)

Data

Sum of 3 digit number = 15

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Let the three digit number be xyz ,
 then: $x + y + z = 15$ — (1)

Sum of 10th and unit digit is 12,
 $y + z = 12$ — (2)

Difference of unit digit from 10th
 digit is equal to 2:
 $y - z = 2$ — (3)

Solution:

Putting (2) in (1),

$$x + 12 = 15$$

$$\boxed{x = 3}$$

Solving (2) and (3),

$$y + z = 12$$

$$y - z = 2$$

$$2y = 14$$

$$\boxed{y = 7}$$

Putting $y = 7$ in (3),

$$7 - z = 2$$

$$\boxed{z = 5}$$

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So the three numbers are :

$$x = 3$$

$$y = 2$$

$$z = 3$$

(b):

Data:

Total persons = 18

Ratio of ^{slices in} small : medium : large = 2 : 3 : 4

Each slice weight = 40 gm

Price of smaller pizza = 320

Each person = one slice

$$\text{sum of ratio} = 2 + 3 + 4 = 9$$

Solution:

Total slices = 18 slices

$$\text{No. of slices in small pizza} = \frac{2}{9} \times 18$$

$$= 4 \text{ slices}$$

$$\text{No. of slices in medium pizza} = \frac{3}{9} \times 18$$

$$= 6 \text{ slices}$$

$$\text{No. of slices in large pizza} = \frac{4}{9} \times 18$$

$$= 8 \text{ slices}$$

$$\begin{aligned} \text{Weight of total pizzas} &= 40 \times 18 \\ n &= \boxed{720 \text{ gm}} \end{aligned}$$

$$\begin{array}{l} \text{Price} : \text{Slice} \\ \uparrow 320 : 4 \uparrow \\ n : 18 \uparrow \end{array}$$

$$\frac{n}{320} = \frac{18}{4}$$

$$n = \frac{18}{4} \times \frac{80}{320}$$

$$\text{Price} = n = 1440 \text{ Rs}$$

So, the weight and price are,
 weight = 720 gm
 Price = 1440 Rs

(c):

Data:

Diameter of circle = 6 cm

$$\text{radius} = \frac{6}{2} = 3 \text{ cm}$$

Solution:

Circumference = $2\pi r$

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$$\begin{array}{r} 3.1416 \\ \times 9 \\ \hline 28.2744 \end{array}$$

$$\begin{array}{r} 3.1416 \\ \times 6 \\ \hline 18.8496 \end{array}$$

$$C = 2 \times 3.1416 \times 3$$

$$= 6 \times 3.1416$$

$$C = 18.8496 \text{ cm}$$

$$\text{Area of circle} = \pi r^2$$

$$= 3.1416 \times 3^2$$

$$= 3.1416 \times 9$$

$$\text{Area} = 28.2744 \text{ cm}^2$$

So, the circumference and area of circle are:

$$\text{circumference} = 18.8496 \text{ cm}$$

$$\text{Area} = 28.2744 \text{ cm}^2$$

(d):

(i) 13, 24, 46, 90, 178, 354

$$13 + 11 = 24$$

$$24 + 11 \times 2 = 46$$

$$46 + 22 \times 2 = 90$$

$$90 + 44 \times 2 = 178$$

$$178 + 88 \times 2 = 354$$

$$\begin{array}{r} 88 \\ \times 2 \\ \hline 176 \\ + 178 \\ \hline 354 \end{array}$$

MOTOWOTOFOSO

(ii)

5, 6, 9, 14, 21, (30)

$$5 + 1 = 6$$

$$6 + 3 = 9$$

$$9 + 5 = 14$$

$$14 + 7 = 21$$

$$21 + 9 = 30$$

2 - No - 8(a)Data:

$$\text{width} = \frac{60}{100} \times \text{length}$$

$$\text{length of classroom} = 15 \text{ ft}$$

Solution:

$$\text{length} = 15 \text{ ft}$$

$$\text{width} = \frac{60}{100} \times 15 = 9 \text{ ft}$$

So the rooms dimensions are:

$$\text{width} = 9 \text{ ft}$$

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$$\text{length} = 15 \text{ ft}$$

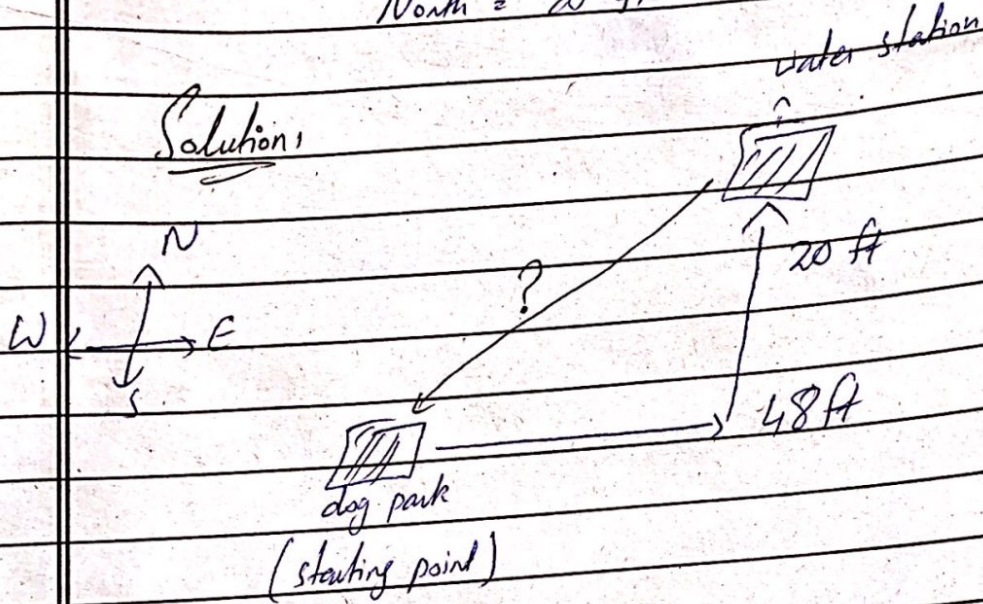
(b):

Data:

East = 48 ft

North = 20 ft

Solution:



following pythagoras theorem

$$\begin{array}{r}
 48 \\
 \times 48 \\
 \hline
 384 \\
 192 \times \\
 \hline
 2304
 \end{array}$$

$$\begin{array}{r}
 20 \\
 \times 20 \\
 \hline
 00 \\
 40 \times \\
 \hline
 400
 \end{array}$$

$$\begin{array}{r}
 2704 \\
 \sqrt{} \\
 25 \\
 \hline
 204 \\
 204 \\
 \hline

 \end{array}$$

$$\begin{array}{r}
 52 \\
 \sqrt{} \\
 104 \\
 260 \times \\
 \hline
 2704
 \end{array}$$

$$\begin{aligned}
 H^2 &= B^2 + P^2 \\
 H^2 &= 48^2 + 20^2 \\
 H &= \sqrt{48^2 + 20^2} \\
 &= \sqrt{2304 + 400} \\
 &= \sqrt{2704} \\
 \boxed{H} &= \boxed{52 \text{ ft}}
 \end{aligned}$$

So, Veena had to run 52 ft straight in order to reach dog park.

LCJ:Data

$$\text{Total students} = 40$$

$$\text{Total students average} = 52.15$$

$$\text{Wrong marks} = 49$$

$$\text{Correct marks} = 85$$

Solution

$$\text{Average} = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

$$52.15 = \frac{\text{Sum}}{40}$$

$$\text{Sum} = 52.15 \times 40$$

$$\text{Sum} = 2086.0$$

$$\begin{array}{r} 52.15 \\ \times 4 \\ \hline 2086.0 \end{array}$$

$$\text{Average after correction} = \frac{2086 - 49 + 85}{40}$$

$$= \frac{2037 + 85}{40}$$

$$= \frac{2122}{40} = 53.05$$

$$\begin{array}{r} 21 \\ 53.05 \\ \hline 20 \overline{) 1061} \\ \underline{100} \\ 61 \\ \underline{60} \\ 106 \\ \underline{100} \\ 6 \\ \times \end{array}$$

$$\text{Average after correction} = 53.05$$

So, the correct average marks of
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The class = 5305 males

(d):

Data

Vegetable Pizza = 37

Chicken Pizza = 25

Neither = 3

Total = $37 + 25 + 3 = 65$

Solution

Probability that
person likes
chicken pizza = $\frac{\text{Chicken Pizza}}{\text{Total persons}}$

$$= \frac{25}{65} = \frac{5}{13}$$

$$\text{Probability} = \frac{5}{13}$$

So the probability that person likes
chicken pizza = $\frac{5}{13}$