

Section II

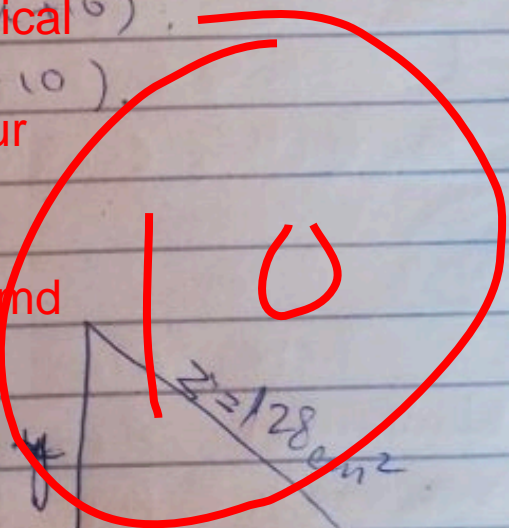
General Instructions

Q7 (a)

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions. Give small paragraphs with headings instead.
4. Draw figures/diagram/flowchart/map in every question.
5. Start new question from fresh page.
6. Explain the steps in your mathematical calculations.
7. Do not forget to write the unit of your answer while attempting mathematics questions.
8. Do not use lead pencil. Only blue and black colours are allowed.

When:

In isosceles triangle.
two sides are equal.
Perpendicular (y) = Base (x).
So $y = x$.



Apply Pythagoras theorem.
(Perpendicular)² + (Base)² = (Hypotenuse)².
 $y^2 + x^2 = z^2$
So $y = x$.

128
2

$$\begin{aligned}x^2 + x^2 &= z^2 \\2x^2 &= 128 \text{ cm}^2 \\x &= \sqrt{\frac{128}{2}} \Rightarrow x \Rightarrow \sqrt{64} \\x &= 8 \text{ cm}\end{aligned}$$

The length of each side is 8 cm
 $x = y = z = 8 \text{ cm}$, $y = 8 \text{ cm}$

(c)
 - Median: It is the middle value in given data
 Example: 1, 2, 3, 3, 4

- Mode: Most repeated value in given data
 Example: 1, 2, 3, 3, 4 (3 is the mode value)

- Range: It is the value which is obtained by the subtraction of lowest value from highest value
 E. Q: It is the ability to understand, use, and manage your own education.

I. Q: It is the Intelligence Quotient which tell us about our Intellectual properties

(d)

Solution:

$$y = 34 - 29 = 5 \text{ m}$$

According to pythagoras theorem.

$$(\text{Base})^2 + (\text{Perpendicular})^2 = (\text{Hypo})^2$$

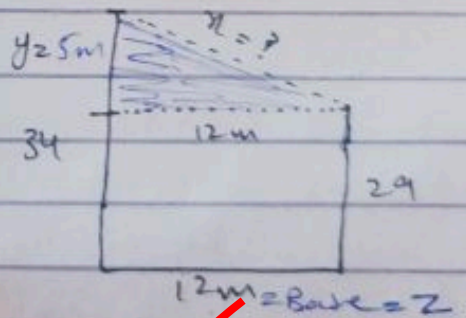
$$(12)^2 + (5)^2 = (x)^2$$

$$144 + 25 = x^2$$

$$\sqrt{169} = x^2$$

$$x = \sqrt{169}$$

$x = 13 \text{ m}$ → Distance between two buildings from the top



$$\begin{array}{r} 144 \\ 25 \\ \hline 169 \end{array}$$

$$\begin{array}{r} 13 \\ 13 \\ \hline 59 \\ 13 \\ \hline 149 \end{array}$$

1	2	3
4	5	6
7	8	9

Q. 8. (a).

Total squares = 14

How? Reasoning?

(B).

Given:

$A.M = 17$, Total obs = 14 $\rightarrow x = ?$
 $17 = \frac{26+12+14+15+x+17+9+11+18+16+28+20+22+8}{14}$

$17 = \frac{176 + x}{14}$

$17 \times 14 = 216 + x$

$238 - 176 = x$

$x = 62$

$x = 62$

217	26
14	26
68	15
17x	26
1238	11
176	18
62	16
	28
	42
	8
	176
	98

(C)

Given:

Sugar

4

Sugar

6

Flour

2

Flour

4

Ladoo

1

Barfii

1

If sugar = 260

Flour = 160 kg

Amount of Ladoo & Barfi = ?

Q8 (d)

$$U = N = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

1st four Prime Numbers Set = $A = \{2, 3, 5, 7\}$

$$A' = U - A$$

$$= \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\} - \{2, 3, 5, 7\}$$

$$A' = \{1, 4, 6, 8, 9, 10\}$$

Q3 (PART C)

Mitochondria is a power house:

Structure:

a) Outer membrane:

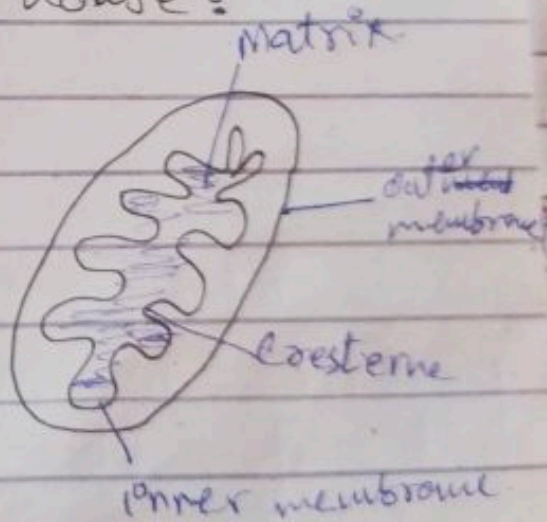
It is the outer most membrane of mitochondria.

b) Inner membrane

The inner membrane of mitochondria

c) Matrix:

It is the liquid or jelly like material which is present to control metabolism.



of different biological molecules.
Cristae: Folding in inner membrane.

Energy Producing mechanism:
Kreb cycle and electron transport
chain reaction occur in mitochondria
for ATP production. Mitochondria is
double membrane bounded structure
that's why we can understand that
it has its own circular DNA.

Function:

Mitochondria helps to metabolism the
macro molecules such as glucose to
produce energy in the form of ATP

Why we need mitochondria & energy:
Because we need energy in
our daily life activities that's why
we need mitochondria.

How many ATP's (net) generated by mitochondria?
Total amount of ATP's (net) molecules
produces in our body is 38. But
out of 38 molecules, 36 molecules (net)
produced in a kreb cycle and
Electron transport chain. So, we need
energy for our survival.

Q3 (B)

Essential fats:

These are the fats which are required by our body: and our body is not able to produce it naturally that's why we need these fats from our food. We need to take balanced diet which includes all essential nutrients for our survival.

Example: We need omega 3 and omega 6 for our survival because these are not synthesized by our body. Source of these fats are fish, vegetable oil etc.

TYPE of Fats:

- Majorly there are two types.
Saturated Unsaturated.

- Just have single bonds.

- ~~Liquid~~ ^{Solid} in room temperature

- Obtained from animals

- Example

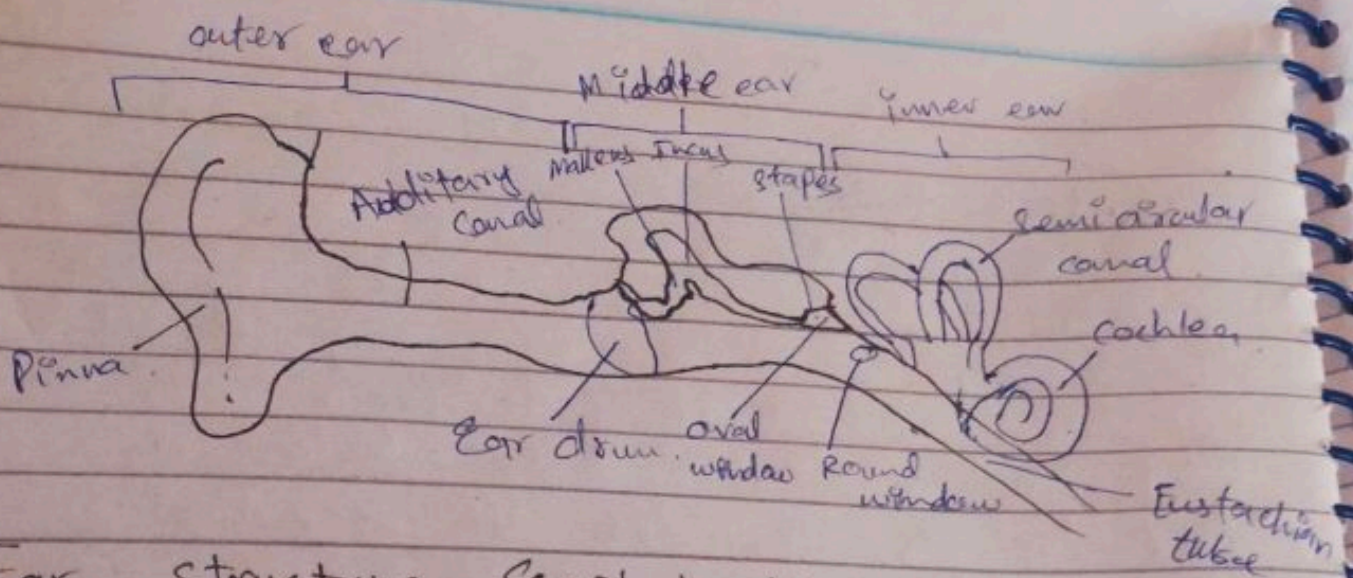
Butter, cheese

At least one double bond is present.
~~Solid~~ ^{Liquid} in room temperature.

Obtained from plants.

Example:

Oleic oil, olive oil etc.



Ear structure Explanation:

Ear has three major parts

- ① Outer ear.
- ② Middle ear.
- ③ Inner ear.

Outer ear: Receives sound waves.

- ① Pinna: External part of our ear to receive sound waves.
- ② Auditory canal: Transfers sound waves from Pinna to ear drum.

Middle ear:

It further transfers the sound waves to inner ear.

- ① Ear drum: It vibrates when sound hit it.
- ② Malleus, Incus & stapes: These small ^{bones} ~~bones~~ transfer the vibrations to cochlea and semi-circular canal.

Inner ear:

- ① Semi circular canal: and cochlea.
These parts convert sound wave/vibration into nerves impulse. This impulse further transfer to the Eustachian tube.
- ② Eustachian tube: It transfer generated impulses to the brain.

Q3 (d)

Remedial Measures:

- ① We can use the process of vegetative propagation to improve the quality of food.
- ② We should follow genetic modified organisms models to enhance the reproduction capacity and quality of plants. By doing this we can ultimately produce qualitative food.
- ③ Next Generation Sequencing (NGS) can be used to manipulate the DNA of living organisms such as plants and animals so we can get better quality food material from them.
- ④ Pesticides, Insecticides & herbicides use on

coops should be decreased. Because they may be harmful for human health.

- Management system should be checked to improved the quality of produced food quality.

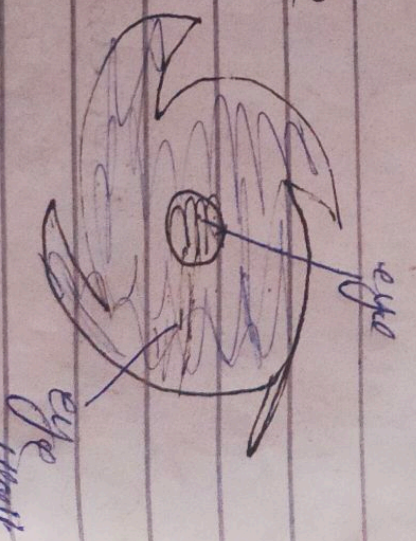
Q2 (a).

cause of cyclone:

When hot air blown on the surface of sea water then it causes the lowering of atmospheric pressure. This irregular movement of wind over surface of sea water and low atmospheric pressure results in cyclone.

In which part winds are strongest and destructive.

Winds are strongest and destructive on eye and eye wall regions.



Because the wind particles are closest to each other and have high speed. This high speed tends other particles to participate in this process and form a large ring like structure.

which we know as yellow.

Q 2 (B).

Blackhole:

It is the region in space where there is strong gravitational pull nothing even light cannot pass through it because the large matter is packed into the tiny space. This is usually occurs during the death of stars.

How is a black hole formed?

Most of the black hole formed from the remnants of a large stars that dies in a supernova. Supernova is the massive explosion of a big star which may results in the production of black hole.

Q 2 (C)

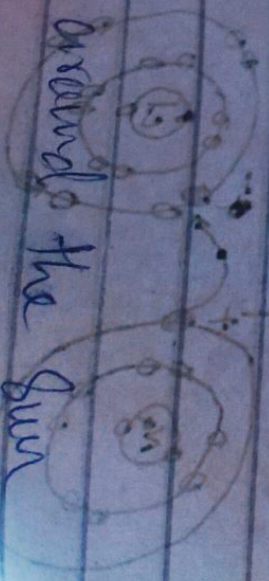
Rotation

of Earth:

Rotation of the earth is its movement across its own axis. The time period of one complete rotation is approximately 24 hours. It helps to change day into night and vice versa.

Revolution of Earth:

When earth revolves around the sun



is called the revolution of earth. earth completes its one revolution in approximately 365 days. It causes seasonal changes. The part of earth closer to the sun will be hotter than the part which is far apart.

Structural Parts:

- The part of earth which faces the sun left has day and hot weather.
- And the part of earth which do not face the sun right has night or winter season, mostly.

Q 2 (D)

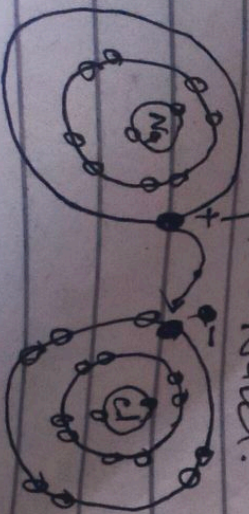
Ionic bond

- Complete transfer of valence electrons between two or more atoms.

- It make pairs such as cation and anions

- Have no types.

- Example: NaCl.



covalent bond.

- Sharing of electron between two or more atom.

- It doesn't make ions

It has three types
single, double or triple covalent bond.

Example: H_2 , N_2 , O_2

