Tooba Suhail

Question no:5

(A) : What is sea surface temperature rise? How does it affect the formation of tropical cyclones?

(i) **Sea Surface Temperature Rise:**

Sea surface temperature rise refers to the rise in temperature of ocean waters. This is due to global warming. As when the temperature of the earth surface rises it shifted towards the ocean surface. Sea Surface Temperature (SST) is 26.5°C and storm comes when this average temperature rises.

(ii) **SST affect the formation of tropical cyclones:**

When there is SST rise beyond 26.5°C it led to the storms and tropical cyclones. This warm water changes its physical structure and results in water surges.

(B) How does Optical Fibre work?

1- **Optical Fibre Mechanism:**

Optical fibre mechanism depends on total internal reflection process. In which data convert from data in to light signal.

2- **Process:-**

(i) **Transmission:** This is first stage in which transmitter present in optical fibre converts data in to light signal i.e wave signal.

(ii) **Core and cladding:** Then this light signal move towards core and cladding of the optical

fibre in which core is the internal layer having high refractive index and cladding, the outermost layer to the core has low refractive index ($\theta_1 > \theta_2$). This helps in significant total internal reflection and signals remains in the core while travelling.

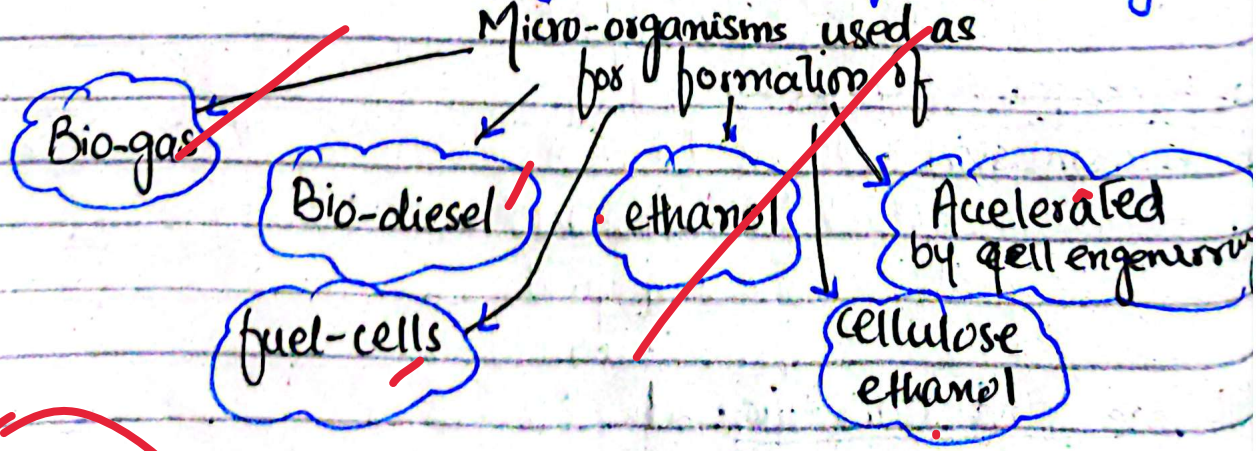
(iii) **Propagation of the signals:**

Light signals propagates and travel via optical fibre by bouncing horizontally and reflecting continously refers as core-cladding interface.

(iv) **Reception of signals:**

Light signals can be recieved, at the end of the photo diode (reciever) is present which recieves the signals and convert it to data again.

(c) Discuss different ways in which micro-organisms can help in meeting the current fuel shortage.



3

Biogas

Micro-organisms convert the organic material i.e food decay and waste agricultural residue in to methane & other gases by break-down process & such gas used as for heat and electricity purpose and renewable energy systems.

Bio-diesel

Some micro-organism synthesize lipids can be used as for bio-diesel

Fuel-cells

Some micro-organisms can direct operate the electric-system by enzymes synthesis & transfer of electrone. g used as for electric vehicals.

Ethanol-formation

By the breakdown the micro-organism release ethanol which can used as gasoline (fossil fuel). It is a good source of renewable energy.

Cellulose ethanol

Useable fuel can also be generated by the degradation of cellulose from organic decay so that ethanol produce used as renewable energy resource.

Accelerated by cell-engeneering

Cell engeneering can be done to boost the fuel formation by micro-organisms

D- Food preservative

Food preservatives used to increase the shelf-life of food. It also prevent contamination

Food Additives.

Food additives are the components which can be used to enhance food,

from the food-borne illness and the other micro-organism formation. forexample. **Sodium benzoate:** It can be used in soft-drinks, jams & pickles. **Pottasium Sorbate:** It can be used in cheese and wine.	colour and food taste as well as food smell. Desireable smell, colour and taste also included in your food by addition of food additives. For-example: **Preservatives** **Colourants** **Flavors** **Emulsifiers** **Sweetners**

Q.3 (A) What are the proteins and carbohydrates? Give their digestion.

Proteins:

These are the large molecules made up of chain of aminoacids which can help in building and repairing tissues.

Digestion:

Stomach:

Protein present in the food can be converted in to polypeptides in the pH acidic. This process can be done by pepsin enzyme.

Small intestine:

The main digestion done in small intestine where such polypeptides convert in to small peptides with the help of trypsin.

and cryptopsin.

Furthermore peptidases enzyme breakdown the small peptides into amino acids and it absorbs by blood stream.

Carbohydrate:

Carbohydrates are the large molecules made up by chemical of monosaccharides (unit) and it converted by amylase and other relevant enzymes.

Digestion:

Mouth:

Starch converted into maltose with the formation of amylase.

Stomach:

HCl present in the stomach & so that it stops the maltose digestion temporarily.

Small intestine:

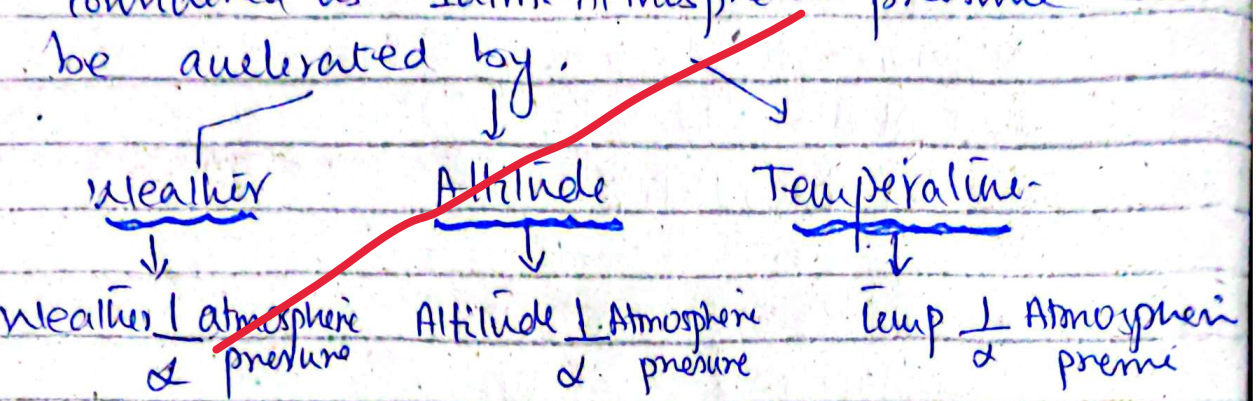
Main digestion of carbohydrate done here, Pancreatic amylase convert further starch into maltose, so that all lactose, maltose further digested into monosaccharides and absorbs in blood stream.

(B) Explain the following.

Atmospheric Pressure:

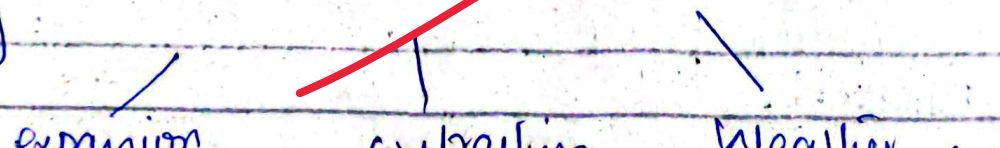
Atmospheric pressure is the force be exerted by the weight of the air on a given object. The standardized atmospheric pressure is

considered as Latin: Atmospheric pressure can be accelerated by:



(b) Atmospheric temperature:

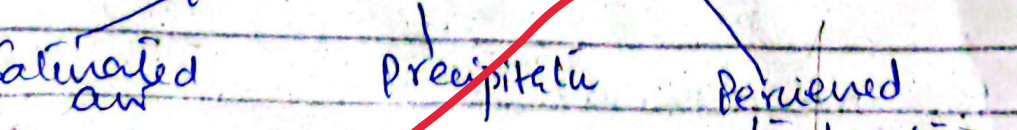
Heat or cold means in a substance or environment. Temperature is the way of measuring the ordinary units used celsius, Farhenit and Kelvin. It can be accelerated by:



(c) Humidity:

The amount of water vapour present in the atmosphere referred as humidity. The 100% is the limit of humidity beyond that air cannot hold up further water vapour.

Effect of humidity on the atmosphere:



Here are the factors (pressure, temp, humidity that can accelerate weather)

(D) Working of RADAR

RADAR refers as Radio Detection and Ranging. It can propagate the data via radio waves. RADAR can be used for the military surveillance, maritime navigation and also for the weather forecasting.

Process:-

Transmission → Reflection → Reception → Analyze and Processing

① **Transmission of signals:**
Signals can be transmitted by antenna through a pulse of radio waves →

② **Reflection of signals**
Such signals strikes with the object (given) and reflect back towards RADAR

↓

③ **Reception of signals:**
The antenna recieve the signals again. So that the speed of light is constant and compare with the speed of wave coming back from object.

↓

④ **Processing the signals:**
Frequency of wave and speed of wave can be detected.

←

⑤ **Analyze and Detection**
The frequency between sent signal and recieve signal can be recorded and measured.

(c) Epemenon of Earthquake with diagrams.

Earthquake can be propagated by a procen of the formation of sesimic waves.

* Sesimic waves.

sesimic waves → waves formed at the surface

↑

epicentre → stored energy propagates at this centre.

↑

Hypocenter (focus) → A point from where plates shifted and stress of energy released

* Sesimic waves

Body waves

Body waves are in the internal earth surface

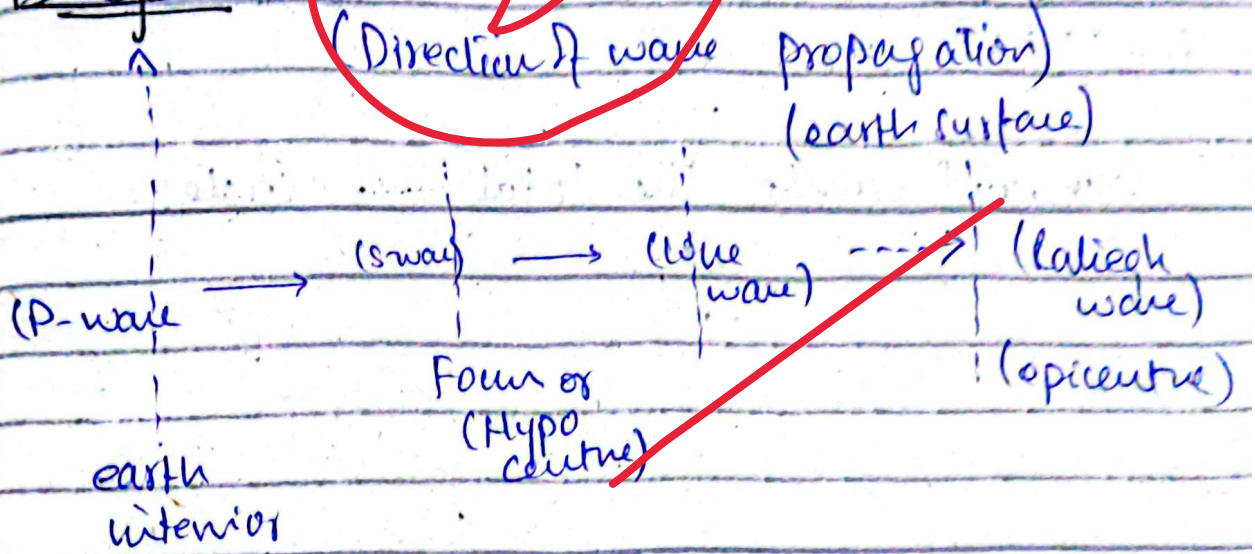
- **Primary waves**
  - There are the compression and longitudional waves like sound waves travel 5-8 km/s Back and Forth. is its movement Solid, liquid and Gas is its medium
- **Secondary waves**
  - Secondary waves are transverse waves. It can travel through solid medium perpendicularly. It can travel like Speed of light. 3-4 km/s Cause of destruction

Surface waves

Surface waves are the sesimic waves on the earth surface.

- **love waves**
  - These are The horizontal shear waves. side by side movement with solid medium they are faster than Raliegh waves
- **Raliegh waves**
  - Raliegh waves are elliptical waves. with side by side movement at solid medium There are real cause of destruction There are like ocean waves.

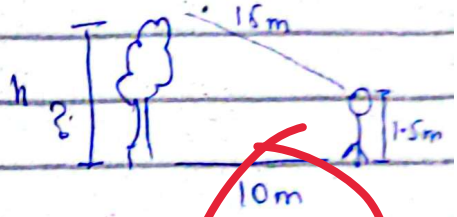
Diagram:



Section III

Q-8

(a) Ali ..... tree.



Distance from tree to Ali = 10m
Distance from feet to eye = 1.5m
From eye to tree top = 15m
Height of the tree = ? $(h - 1.5)$

Use pathagoras theorem

$(hyp)^2 = (prep)^2 + (base)^2$

$(15)^2 = (h - 1.5)^2 + (10)^2$

$225 = (h - 1.5)^2 + 100$

$225 - 100 = (h - 1.5)^2$

$\sqrt{125} = \sqrt{(h - 1.5)^2}$

$11.8 = (h - 1.5)$

$11.8 + 1.5 = h$

$\boxed{13.6\ m = h}$

(b) Find out the correct word.

SONCCUOISIONT: consiquestions

EIVENPROAST: preservations

UORSIULDC : Cuisoluid
NMILAOPC : Complain

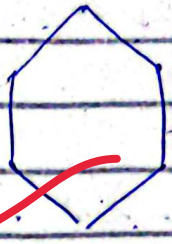
(c) Draw and write the total ..... circle?

Hexagon:

It has 6 lines of symmetry and all are planes through opposite vertices or the midpoints of opposite sides

e.g

benzene structure.



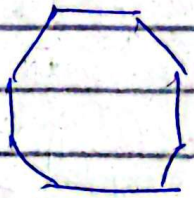
2

Octane.

It has 8 lines of symmetry and all are planes through opposite vertices or midpoints of opposite sides.

e.g.

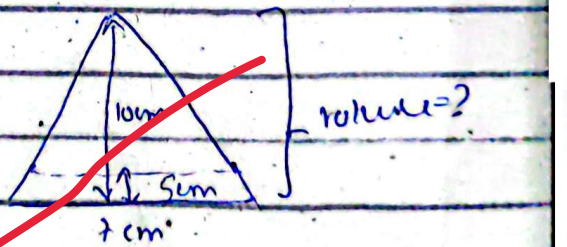
=> High octane - 8



(d) Base ....

Height of the pyramid = 10cm

Volume = ?



Volume = $\frac{1}{3}$ x Base Area x Height

Area = L x W = 7 x 5 = 35cm²

Volume = $\frac{1}{3}$ x 35cm² x 10cm

= $\frac{1}{3}$ x 350cm³ (116.6)

= 116.6 cm³

3

Q-6 T=3

a) Farmoula of depriation:

Future = Present x (1 − Depreciation rate)^t

8748 = ? x (1 − 0.10)^3

$\frac{8748}{(0.90)^3}$ = Present value

$\frac{8748}{0.729}$ = Present value

12000 = Present value.

b) Father Age of daughter = x

Father = 4x

After 5 years. daughter

3(4x+5) (x+5)

How many time of daughter age

3(4x+5) x = -5

3(4(-5)+5) x =

3(-20+5) 50 years

3(-15)

-45.

After 5 years = 4x+5

daughter = 3(x+15)

4x+5 = 3x+15

x = 10

Further After 5 years 40+10 = 50

10+10 = 20

50 - 2.5

40 2.5 tenes

4x+5

4(10)+5 = 45

Current

4x = 4x10

= 40

x = 10

4 Volume of football diameter 12 cm?

$V = \frac{4}{3}\pi r^3$

$= \frac{3}{4}\pi\left(\frac{12}{2}\right)^3$

$= \frac{(3.14)(1488)}{4}$

$V = \frac{4}{3}\pi r^3$

$r = \frac{d}{2}$

$= \frac{4}{3}(3.14)\left(\frac{12}{2}\right)^3$

$= \frac{4}{3}(3.14)(6)^3$

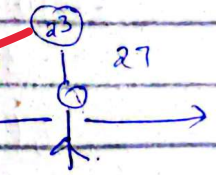
$= \frac{4}{3}(3.14)(216)$

$= 4(3.14)(72)$

$= 904.32\ cm^3$

Improve content
Make headings in the answer
Keep length of all questions equal.
Understand the question carefully
Draw flow charts.
Use scientific terminologies
Use scientific examples
Follow step by step methods for math problem
The answers are insufficient to fulfill the required criteria of the question and marks.
Work hard.

Q-6/(d) Distance = ?



$D_1 = S_1 \times t$ $\quad D_1 = S_1 \times 27$ —(i)

$D_2 = S_2 \times t$ $\quad D_2 = S_2 \times 17$ —(ii)

$D_1 + D_2 = (S_1 + S_2) \times 23$ —(iii) ratio

$(S_1 \times 27) + (S_2 \times 17) = (S_1 + S_2) \times 23$

$27S_1 + 17S_2 = 23S_1 + 23S_2$

$27S_1 - 23S_1 = 23S_2 - 17S_2$

$4S_1 = 6S_2$

$S_1 = \frac{3}{2}S_2$

$S_1 = 3:2\ S_2$