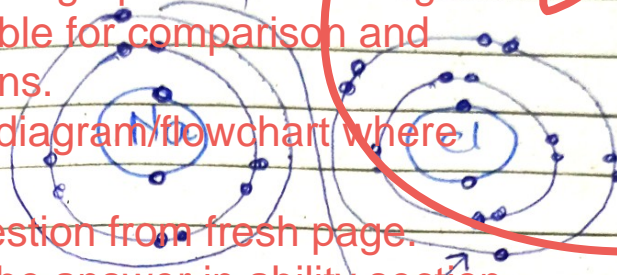


Date: _____

General Instructions

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.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressly asked parts of the question.

Q: 2 a. Octet rule : covalent bond
Octet rule states that an atom has to complete its outer shell with 8 electrons.

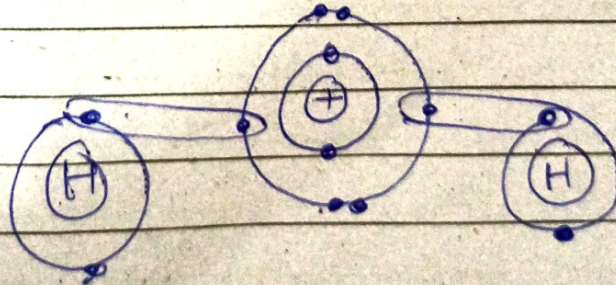


$Z = 17$

Here according to octet rule the outer most shell will have 8 electrons so it will carry one electron by transfer.

Covalent bond: The type of chemical bond that is due to sharing of electrons mutually.

Example: H_2O



The oxygen has atomic number 8 and have 2 unpaired electrons in it valence shell

Date: _____

To complete its octet it will share electrons with two atoms of Hydrogen each having one electron in valence shell for completing its duplet.

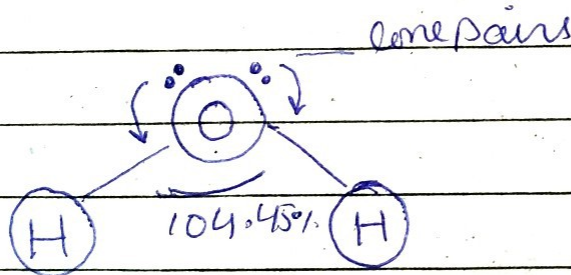
b Why water molecule is angular in structure.

Lone pair - lone pair repulsion:

Water molecule is angular in structure because of lone pair - lone pair repulsion which does not take part in bonding

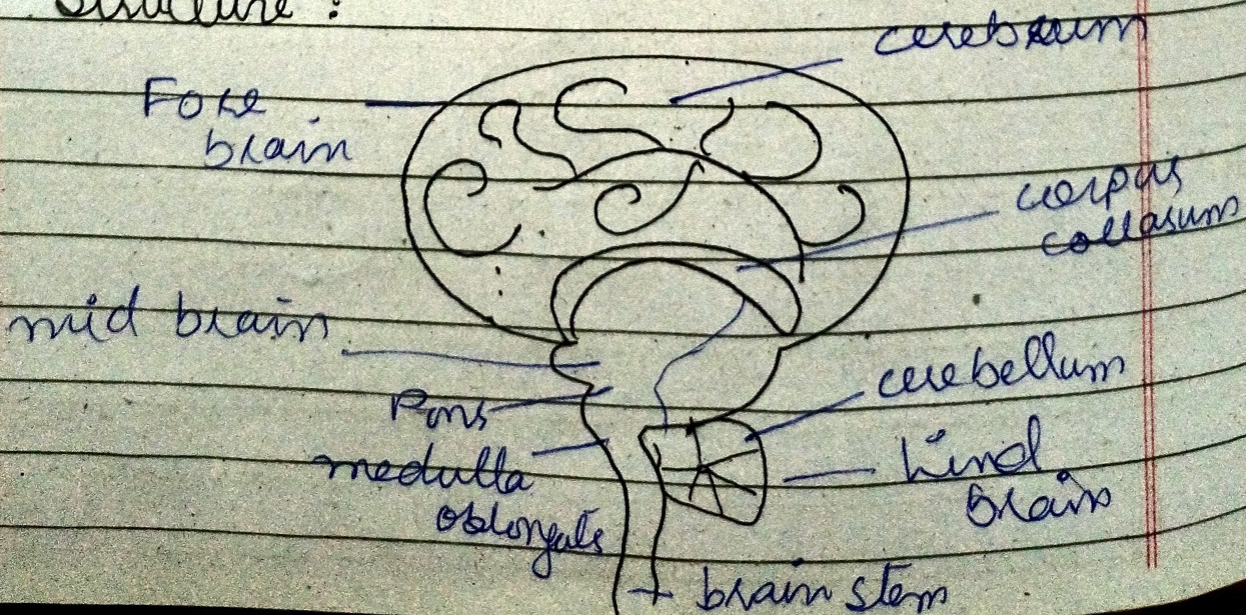
Angle: 104.45°

Structure:

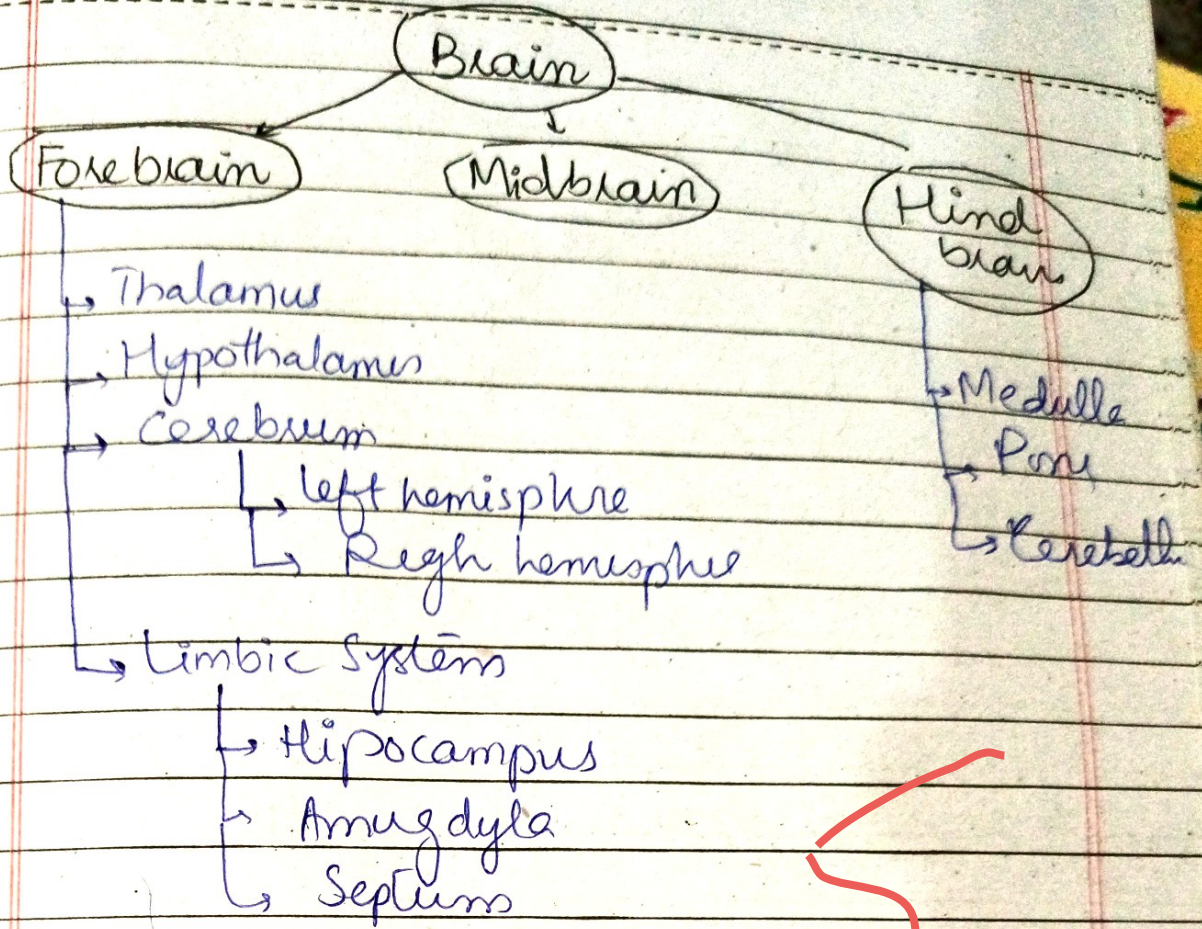


c write note on structure and function of Human brain

Structure:



Date: _____

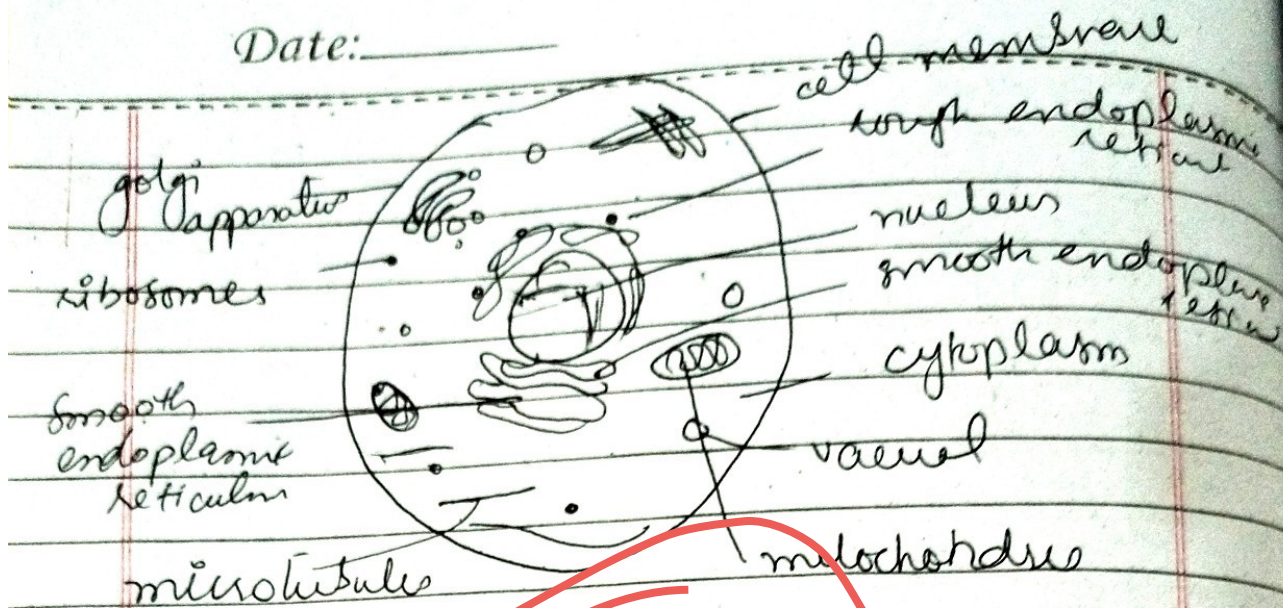


Function of brain:

- Regulation of all body activities
- Responsible for emotions, memory and thinking
- Receive and respond to all five senses
- Regulate body temperature
- Body movement.

d Cell structure, main function of 3 subcellular organelles
Cell is the basic structural and functional unit of living organism

Date: _____



Animal Cell

Function.

- 1 Rough endoplasmic reticulum protein formation
- 2 Golgi apparatus package and export ribosomes
- 3 Cell membrane transport of material
Detail?
 - Generate nerve impulse

Q3 What is Polio

Polio It is viral disease

it is reduced upto 99% since 1988. it has 3 strains

Symptoms
fever

Fatigue

Headache

Vomiting

Stiffness

It affect mostly children
under age of 5.

Causes

It cause irreversible

Paralysis

Preventions It has no cure

Spread through faeces.

Differentiation between IPV and

OPV

IPV

• Inactivated polio
vaccine

• Given by injection

• more effective

~~OPV~~

~~Oral polio
vaccine~~

~~Given by mouth
less effective~~

(b)

Name two parts of Nervous
System.

i Central Nervous system

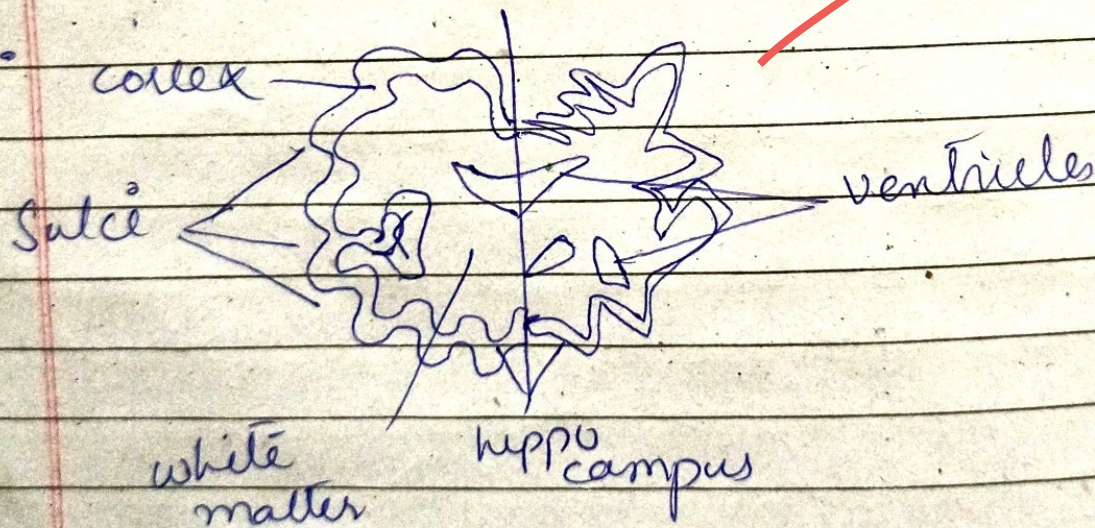
ii Peripheral Nervous System

CNS. it consist of
Brain and spinal cord.

- It control all the functions of body
- It play role in movement and senses as well as control different hormonal activities.
- It play role in cognitive thinking, memory and emotions

⇒ Alzheimer disease: The degeneration of neurons occur in brain
Common in Old age people
Symptoms: Loss of memory (dementia)

- short term
- Dizziness

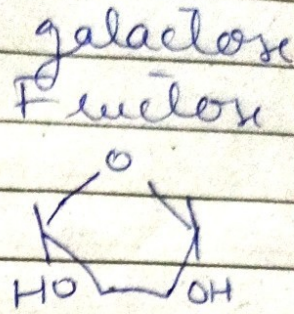
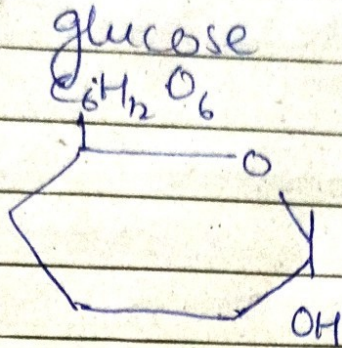


b) Carbohydrates are major source of energy
Carbohydrate carbohydrates are hydrated carbon that are major source of energy
energy yield: 3.9 cal/g

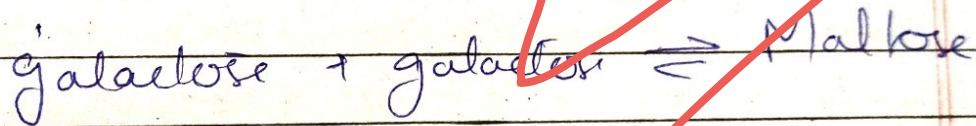
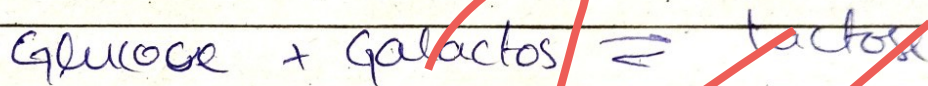
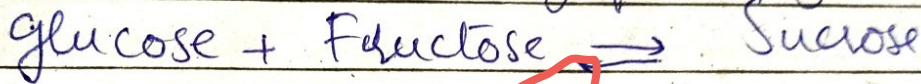
Date: _____

Classification

① Monosaccharide:



② Disaccharide: when two monosaccharides combine they form disaccharide



③ Polysaccharide:

long hydrocarbon chain of monosaccharide sugars.

e.g. Glycogen

d Discuss importance of preservation and antioxidants in food.

Importance of preservation

1) To prevent food borne illness by the growth of microorganism like bacteria, yeast, and molds.

Date: _____

- 2 To extend the shelf life of food
- 3 To reduce food waste by allowing people to store food for later
- 4 To improve nutritional value of food by dehydration.
- 5 To make food more convenient to use e.g. canned food.

Antioxidants in food:

Antioxidants are substances that can prevent the damage caused by free radicals in body. Free radicals are unstable molecules that can damage cell leading to health problems e.g. Heart diseases, Cancer, premature aging. They help boost immunity.

- They protect against neurodegenerative diseases e.g. Alzheimer

15 Write note on Networking and Internet Standards

Networking Standard

Physical connection of different computer systems is called networking

It is local in scope

Date: _____

- It enable within same network
- It is accessible only to authorized users
- It relies on wifi, Ethernet TCP / IP
- It has fewer hardware
- It communicate between specific group

Excess. Only 2 long questions from this section n

Internet Standard.

- It is connection of different computer systems throughout the world.
- It is global in scope.
- It allow multiple networks to communicate
- Everyone can get access to internet
- Its infrastructure is complex
- It is used for global communication

(b) What is artificial intelligence pros and cons.

AI Artificial intelligence:

AI came into being in 1950s by Minsky and McCarthy. It is rapidly evolving field now with potential to

revolutionize many aspects of our lives. It is already being used in a variety of ways.

Pros of AI:

- Improved decision making
- Improved safety
- New innovations
- Used in Robotics
- Used in cognitive science

Cons of AI

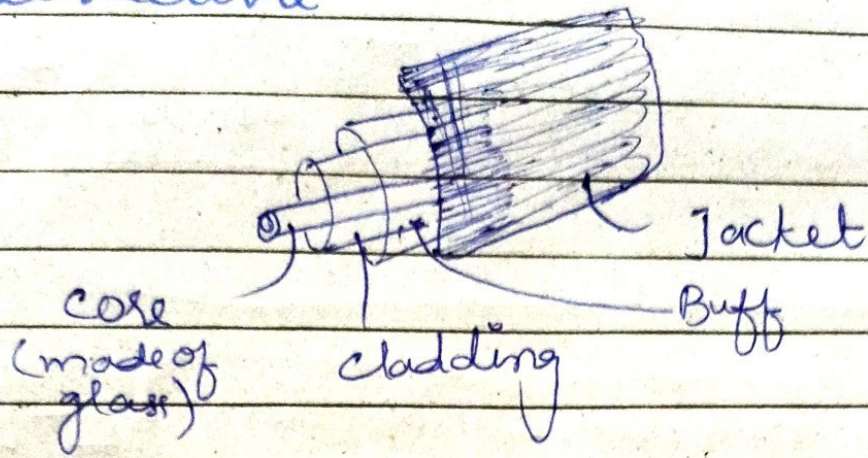
~~Job displacement by robots,
Privacy concerns as it can track data and monitor activities
Security risk by hacking and manipulating in form of cyber attacks
Social media propaganda can be initiated~~

How is an optic fibre constructed

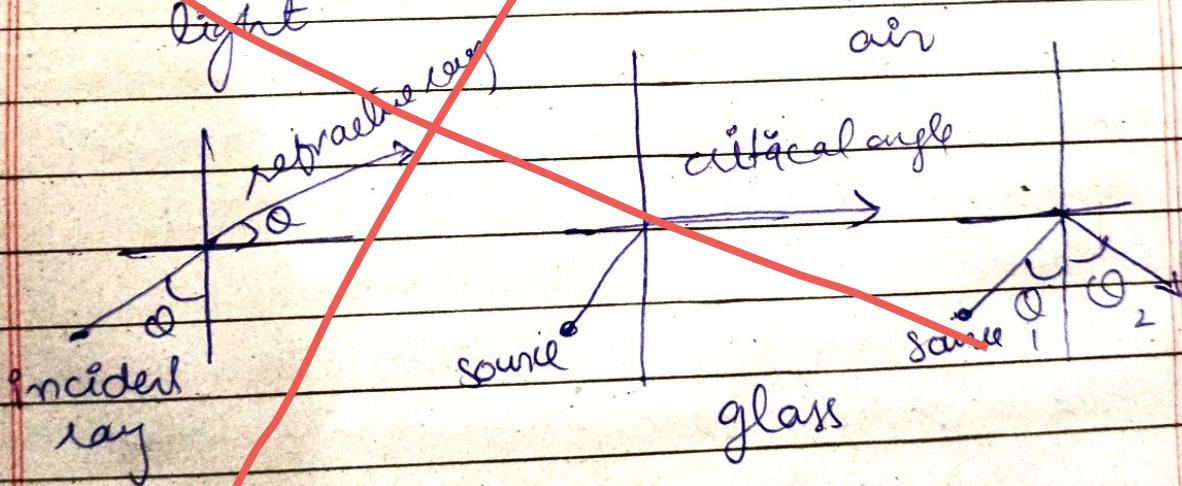
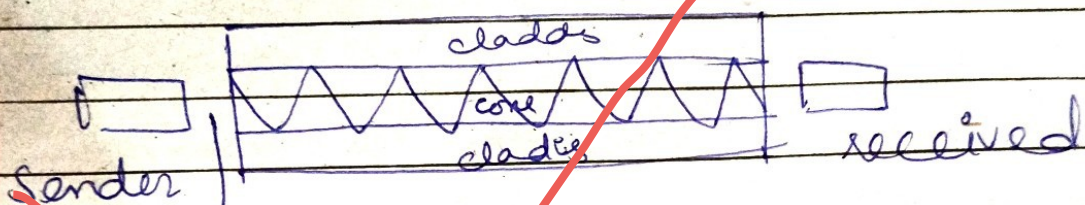
Optic fibres:

Optic fibres are glass strands used to transmit light in telecommunication.

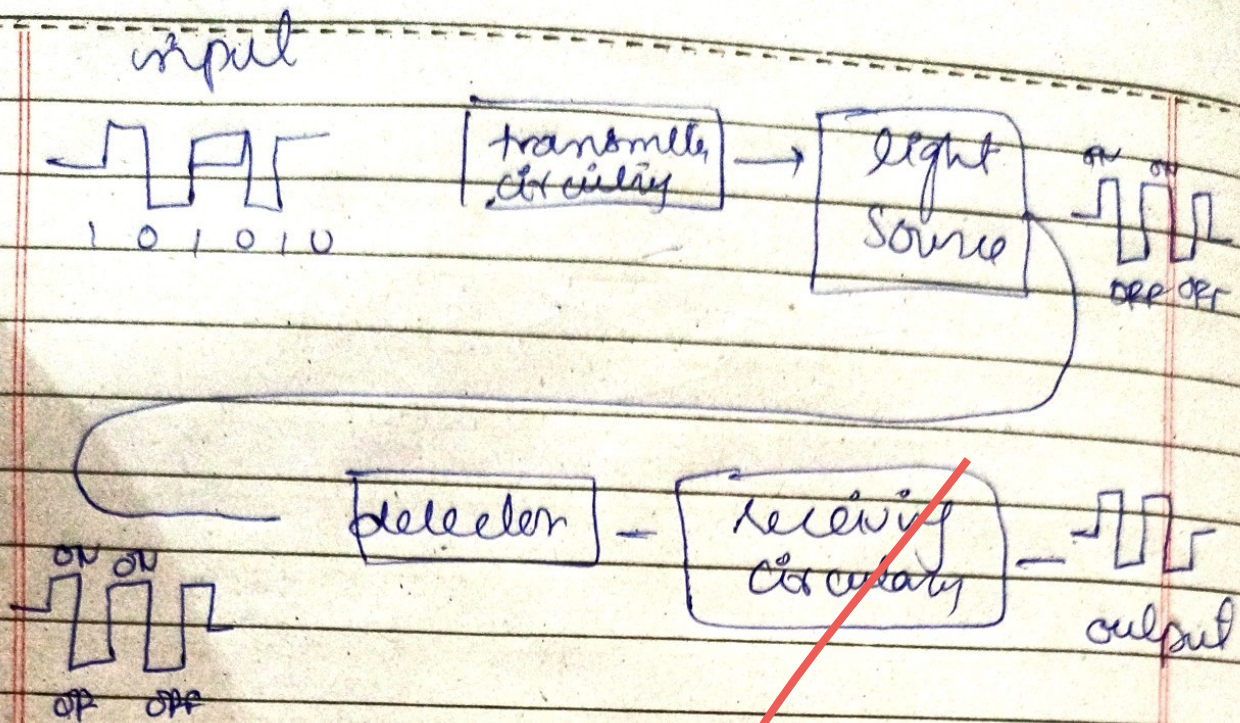
Structure



Working of optic fibres :



- Critical angle is angle of incidence at which angle of refraction becomes equal to 90° .
- After critical angle we can attain total internal reflection.



d) ~~Bioavailability of Nutrients~~
 Bioavailability is the measure of how much of a nutrient is absorbed and used by body. The bioavailability of nutrient depend on number of factors including:

- The food source
- The individual health
- Presence of other nutrients

how to improve bioavailability

- Eat nutrient rich food
- Cook vegetable properly
- Avoid processed food
- Take supplement as directed by doctor

Date: Ability Portion

Q7
a

Ishaq - 6 hours
Abbas - 4 hours
Irfan - 8 hours

Total time = ?

Ishaq and abbas work :

$$\frac{1}{6} + \frac{1}{4} = \frac{2+3}{12}$$

$$= \frac{5}{12}$$

$$\begin{array}{r} 2 \overline{) 64} \\ \underline{28} \\ 1 \end{array}$$

OR $\frac{12}{5} = 2.4$

Ishaq and Irfan work

$$\frac{1}{6} + \frac{1}{8} = \frac{4+3}{24}$$

$$= \frac{7}{24}$$

OR $\frac{24}{7} = 3.4$

$$\begin{array}{r} 2 \overline{) 68} \\ \underline{234} \\ 2 \overline{) 2} \\ \underline{2} \\ 1 \end{array}$$

Total work done = $\frac{20 \text{ hours} \times 100}{2.4}$

$$\begin{array}{r} 50 \\ 100 \\ \hline 200 \\ \times 100 \\ \hline 20000 \\ + 2000 \\ \hline 22000 \\ \div 6 \\ \hline 3666.6 \end{array}$$

$$= \frac{83.33}{6}$$

$$\begin{array}{r} 100 \\ 200 \overline{) 2000} \\ \underline{2000} \\ 12 \end{array}$$

83%

Remaining = 73%

$$3.4 \times \frac{17}{100}$$

$$= 0.58 \text{ hrs}$$

$$2 + 0.58 = 2.58 \text{ hours}$$

$$\text{Area} = 576 \text{ m}^2$$

Area of wall ?

$$\text{height} = 2 \text{ m}$$

$$3 \text{ side wall} = 2 \text{ m}$$

$$4 \text{ side wall} = 3 \text{ m}$$

$$\text{Area} = \text{base} \times \text{height}$$

$$\text{Area} = (2 \text{ m} \times 3 \text{ sides} \times 24) +$$
$$(3 \text{ m} \times 1 \text{ side} \times 24)$$

$$= 144 + 72$$

$$= 216 \text{ m}^2 \text{ Answer.}$$

$$\begin{array}{r} 2 \overline{) 576} \\ \underline{2} \\ 288 \\ \underline{2} \\ 144 \\ \underline{2} \\ 72 \\ \underline{3} \\ 36 \\ \underline{3} \\ 12 \\ \underline{2} \\ 4 \\ \underline{2} \\ 2 \\ \underline{2} \\ 0 \end{array}$$

7 Students in group
have ages ...

Date: _____

Mean . Sum of all divide
by number all or
average value is called
mean .

$$\begin{aligned} \text{mean} &: \frac{18 + 18 + 19 + 19 + 21 + 21}{6} \\ &= \frac{58}{6} \\ &= \frac{86}{3} = 19.2 \text{ answer} \end{aligned}$$

Median the middle value
is know as median
19 is median

Mode . most frequent number in
series . here it is 18.

Range largest - smallest value
= 21 - 18
= 3

d. how does mental skills
differ from IQ test.

Mental ability skills are the specific cognitive abilities that are involved in learning thinking and problem solving e.g. memory, attention reasoning, problem solving

- IQ test are designed to measure a person's overall intelligence or general cognitive ability such as verbal reasoning, or numerical reasoning.

$$IQ = \frac{\text{mental age}}{\text{chronical age}} \times 100$$

Q8 a. A car run at a speed 40 km/h

Let the total distance be 80 km

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

1st half of distance

$$v = \frac{s}{t}$$

S. 8

$$40 \text{ km/h} = \frac{\text{distance } 40 \text{ km}}{\text{Time}}$$

$$\text{Time} = 1 \text{ hour}$$

Other half

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{Time} = \frac{40}{60}$$

$$\text{time} = \frac{2}{3}$$

$$\text{Total time} = 1 + \frac{2}{3}$$

$$= \frac{3 + 2}{3}$$

$$= \frac{5}{3}$$

Average speed =

$$\frac{\text{total dist}}{\text{total time}}$$

$$= \frac{80 \times 3}{5}$$

$$= \frac{240}{5}$$

$$= 80 \times 3 = \frac{240}{5}$$

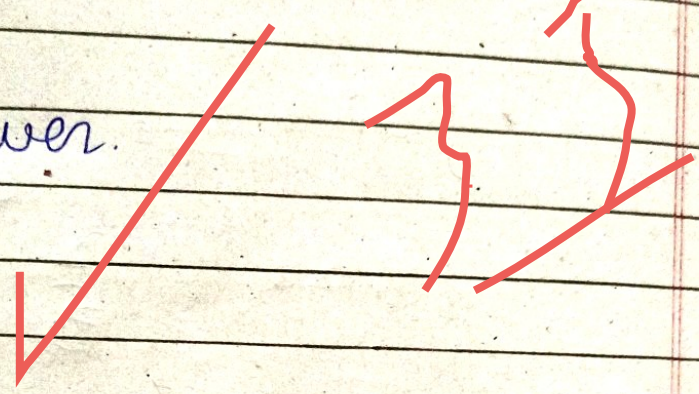
$$= \frac{240}{5} = 48$$

$$= 48 \text{ km/h}$$

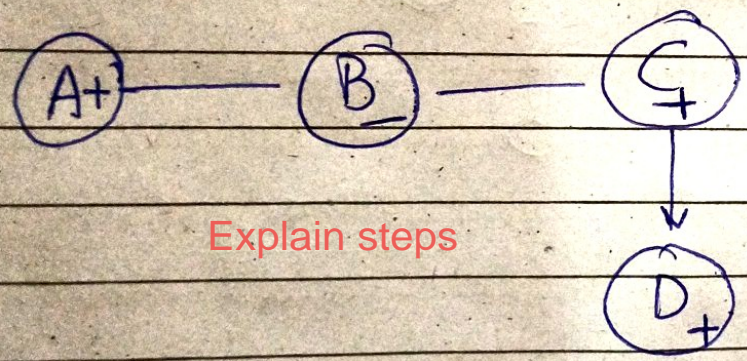
R	6	C	7	P	9
O	8	H	3	R	6
S	2	A	4	E	1
E	1	I	5	A	4
		R	6	C	7

- S 2
- E 1
- A 4
- R 6
- C 7
- H 3

answer.



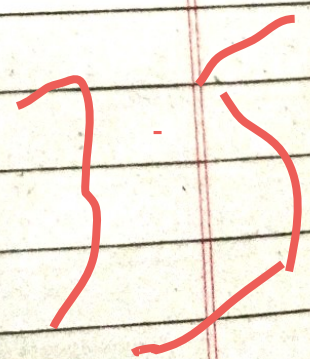
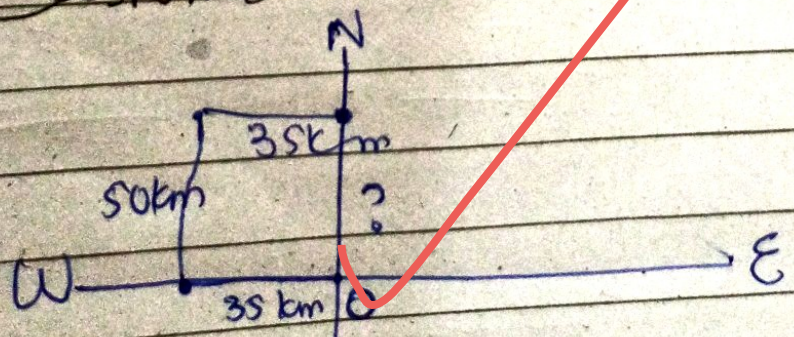
If A is brother of B



Explain steps

D is nephew of A

Kashmala travel



She is 50 km away
from starting point