

General Instructions

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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.

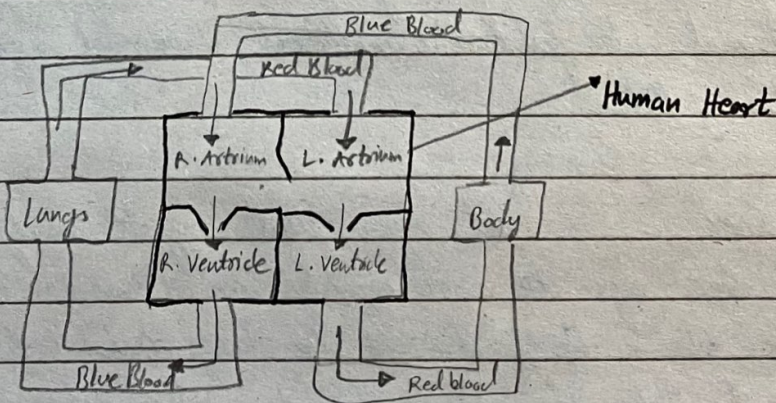
Q. No. 2
4. Draw figures/diagram/flowchart where needed

5. Start new question from fresh page
6. Write unit of the answer in ability section.
7. Explain the theoretical ~~main~~ 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.
11. Avoid writing wrong references.
12. Give more weightage to expressedly asked part/s of the question.

*Part - II
Section - A*

The circulatory system is made up of the vessels and the muscles that help control the flow of the blood through the body. This process is called circulation. The main parts of the system are the heart and blood vessels. The human heart has four chambers. The upper two chambers, the right and left atria receives blood. The lower two chambers, right and left ventricles pump the blood to the body. The right side of the heart pumps oxygen-poor blood to the lungs, while the left side of the heart pumps oxygen-rich blood to the body.

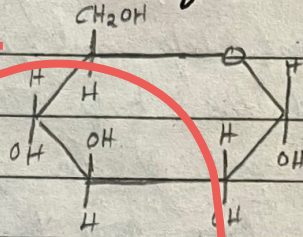
More detail and subheadings needed. Poor presentation.



b Carbohydrates are the human body's key source of energy and they are broken down by the body to produce glucose. They only comprise of carbon, hydrogen and oxygen. Carbohydrates are divided into simple carbohydrates and complex carbohydrates.

Simple carbohydrates are monosaccharide and Oligosaccharides whereas complex carbohydrates are called polysaccharides. Glucose is monosaccharide where mono means one and saccharide comes from greek word sakkaron which means sugar.

Structure of Glucose



c According to Harvard University, water pollution is the contamination of water sources by substances which makes the water unusable for drinking, cooking, cleaning, swimming and other activities. Polluting substances include chemical, trash, bacteria and parasites which contaminate the water and causes water pollution. Main types of water pollution include (i) ground water pollution (ii) surface water pollution (iii) suspended matter, (iv) oil spillages, (v) microbiological pollution (vi) chemical water pollution, (vii) thermal pollution and oxygen-depletion pollution.

d The liver is a vital organ that supports nearly every other organ to some capacity. The liver has a complex role in the function of the body. Detoxification is one of that role which makes it vital for getting rid of body waste. It breaks down the unusable parts of proteins and converts them into ammonia, and eventually uses. That is why liver is called a chief chemist of body because it a produce a chemical called bile that breaks down fats and make them more easily digestible.

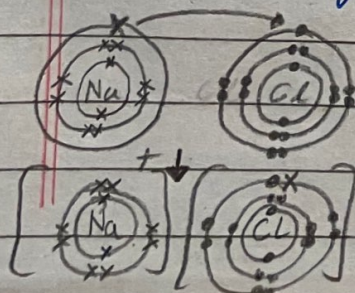
Q no 4

a Artificial intelligence is a wide-ranging tool that allows individuals to reconsider how we can all mix data, examine information, and use the subsequent understanding to conclude. It has revolutionised our world especially by driving efficiencies and enhancing procurement outcomes by automating routine tasks and improving decision-making.

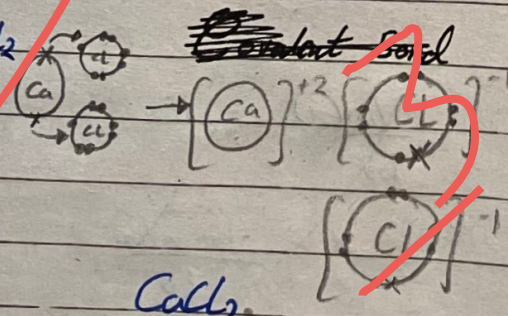
b It is crucial for our generation to realise that we need to take drastic steps before we run out of our last drop of water. Because it will be too late to realise the worth of water as the well will be long dried up. Few measures that we can take as an individuals and as a society are to install water saving appliances in our shower heads, ~~sinks~~ taps, ~~and~~ rain water to water plants. As a society we can cut down on meat consumption which will cut the number of cows used annually which are major source of water usage. We can plant crops that are more drought resistant and require less water for irrigation.

c A vaccine is a preparation that is used to stimulate the body's immune response against diseases. Different types of vaccines are protein subunit, RNA based, DNA based, Inactivated and Live-Attenuated.

d Ionic Bond - e.g NaCl and CaCl₂

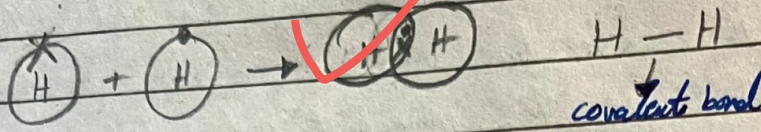


NaCl
Na⁺Cl⁻



CaCl₂

Covalent Bond



(Section - B)

Qno. 6

a age of father = x
age of son = y

$$x - 5 = 3(y - 5) - 1$$

$$y = 30 - 2$$

Explain steps

$$x - 5 = 3(30 - 5)$$

$$x = 3(25) + 5$$

$$x = 75 + 5$$

$$x = 80 \rightarrow \text{father age now.}$$

b

10% = Income tax

Income tax = 1500 Rs

Income = ? = x

10% of income = Income tax

$$\frac{10}{100}(x) = 1500$$

$$\frac{10}{100}(1500) = 150 \text{ Rs in income tax}$$

$$x = \frac{1500 \times 100}{10}$$

$$x = 15000 \text{ Income}$$

$$\frac{10}{100}(x) = 150$$

$$x = \frac{150 \times 100}{10} = 1500 \text{ Rs}$$

c. List of 6 numbers is 20 (Average)
 one number removed the remaining average becomes 15
 Number removed = ?

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

$$6 \times 20 = \text{sum of numbers}$$

$$\text{sum of observations } 120 \text{ --- (1)}$$

$$15 \times 5 = \text{sum of numbers}$$

$$75 = \text{sum of numbers --- (2)}$$

$$120 - 75$$

$$= 45 \text{ is the removal number}$$

$$\begin{array}{r} 180 \\ 75 \\ \hline 105 \end{array}$$

d.

(i) 8, 4, 32, 7, 5, 35

The first number in this numeric series is multiplied with the second number to get the third number. Similarly the fourth number will be multiplied with fifth number to get the missing number which will be 35

(ii) 17, 19, 23, 29, 31, 37

All the numbers are given in the increasing order of consecutive prime number so the number is 29

$$\begin{array}{r} 12 \\ 2 \overline{) 125} \\ \underline{24} \\ 10 \\ \underline{20} \\ 5 \end{array}$$

$$\begin{array}{r} 82 \\ 8 \overline{) 656} \\ \underline{656} \\ 0 \end{array}$$

Q no 8

$$a. 3l = 24 \text{ sq. m --- (i)}$$

$$1/2 \text{ increase} = 50.4 \text{ sq. m} = \pi l \text{ of print --- (ii)}$$

$$\frac{31}{248} = \frac{\pi}{50.4}$$

$$\pi = \frac{50.4 \times 31}{248} = \frac{50.4}{8} = 6.3 \text{ l}$$

$$\begin{array}{r} 25 \\ 2 \overline{) 50} \\ \underline{40} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

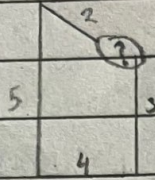
Date: _____

Explain steps

$$\% \text{ age increase} = \frac{332}{3} \times 100$$

$$\% \text{ age increase} = 110\%$$

b



Pythagorean theorem = $\sqrt{3^2 + 1^2} + \sqrt{5^2 + 2^2} = \sqrt{9+1} + \sqrt{25+4}$
 $= \sqrt{10} + \sqrt{29}$
 $= 5 + 5.3$
 $= 10.3 \text{ km away}$

$$\begin{array}{r} 5 \cdot 3 \\ 5 \overline{) 29.00000} \\ \underline{25} \\ 400 \\ \underline{400} \\ 0 \end{array}$$

c Tahir = $12000 \times \text{year}(12) = 180,000$ investment

Umar = $20,000 \times 7 = 210,000$ "

Usman = $45,000 \times 4 = 180,000$ "

$$180,000 : 210,000 : 180,000$$

$$18 : 21 : 18$$

$$6 : 7 : 6$$

Total share = $6+7+6 = 19$

Profit earned in a year = $406,000 \text{ Rs}$

$$\text{Tahir} = \frac{406,000 \times 6}{19} = 128,210$$

$$\text{Umar} = \frac{406,000 \times 7}{19} = 149,529$$

$$\text{Usman} = \frac{406,000 \times 6}{19} = 128,211 \text{ Rs}$$