

## Answer to Q No 2(a)

### Circulatory System

The circulatory system is that system which is responsible for the circulation of blood. Similarly, it evolves in transport of blood nutrients. However, circulatory system evolves in transport of gases such as oxygen, nitrogen and carbon-dioxide. There are various components of blood or circulatory-system which come under discussion.

#### (1) Blood

Blood is the main component of circulatory system. It is complex fluid which has to be circulated in blood. Blood consist of 55% Plasma and 45% blood cells.

#### (2) Blood vessels

In the circulatory system, there are paths of blood passing which are Arteries, Veins and Capillaries that



## Types of blood vessels

There are three types of blood vessels which come under discussion:

### A - Arteries

Arteries is the type of blood vessels which function has to carry blood from heart to body. Moreover, it carries oxygenated blood instead of pulmonary artery. The presence of highest blood pressure is in it.

### B - Veins

Veins are also type of blood vessels which function has to carry blood from body to heart. Similarly, it carries de-oxygenated blood instead of pulmonary vein. The presence of low blood pressure is in it.

### C - Capillaries

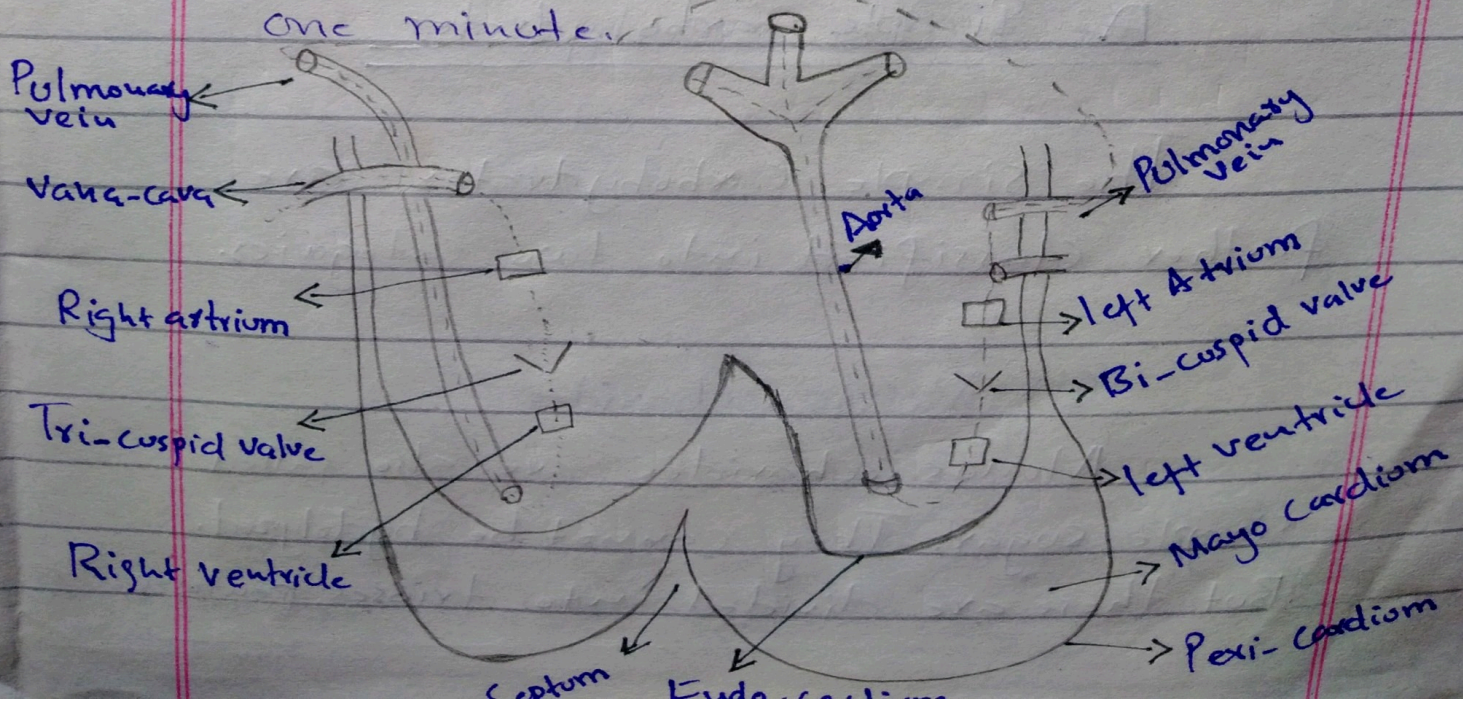
Capillaries are also type of blood vessels. It is extremely thin. Both oxygenated and de-oxygenated blood



present in it. However, it works as junction between Arteries and Veins. As compare to Arteries and Veins, blood pressure least present in it.

## Role of human heart in circulation of blood

Heart is the key part of human body. The function of human heart in circulation blood is that the heart is pumping organ which pumps blood towards body. It carries different veins from the body. De-oxygenated and oxygenated of blood through heart is done. It contracts and relaxes within 0.8 seconds. Heart beats 72 times in one minute.





## Carbohydrates

Carbohydrates are the main source of energy for human body. It provides 3.9 calories of energy per gram. When carbohydrates broken-down by body, glucose is produced. Carbohydrates are organic compound. Carbohydrates comprise of carbon, hydrogen and oxygen. The formula of carbohydrates is  $C_m(H_2O)_n$ .

### Classification of Carbohydrates

The classification of carbohydrates comes under discussion:

#### A- Simple Carbohydrates

The simple carbohydrates are further classified into two categories:

##### (1) Monosaccharides

Monosaccharides are also called simple sugar. They cannot be hydrolyzed. But these are divided into trioses, pentoses



and hexoses etc. Glucose, Fructose are example of it.

## 2) Disaccharide

Disaccharide on hydrolysis is cleaved to two monosaccharides which may be different or same, Sucrose and Maltose are the examples of disaccharide.

## B- Complex Carbohydrates

Complex carbohydrates is further divided into:

### 1) - Polysaccharides

Poly means many. Polysaccharides are compound sugar and yield more than to ten molecules of monosaccharides.

## Answer to QNo2 (c)

### Water pollution

Water pollution is the main cause of chronic diseases like diheria etc. Water pollution is the system of mingling or contaminated water by throughing wastage, acid rain and other resources.



## 1) Acid rain

Water is contaminated after raining acid rain on the soil. It gives birth to different diseases which threaten the life of both living and non-living things.

## 2) Throwing wastage

Water is contaminated by throwing garbage and home wastage into river or ocean. That is also cause of water pollution.

## 3) Industries

Different industries of oil and gas or others which use pipeline for drainage of heinous or waste water into fresh water of river. It is also polluted the water.

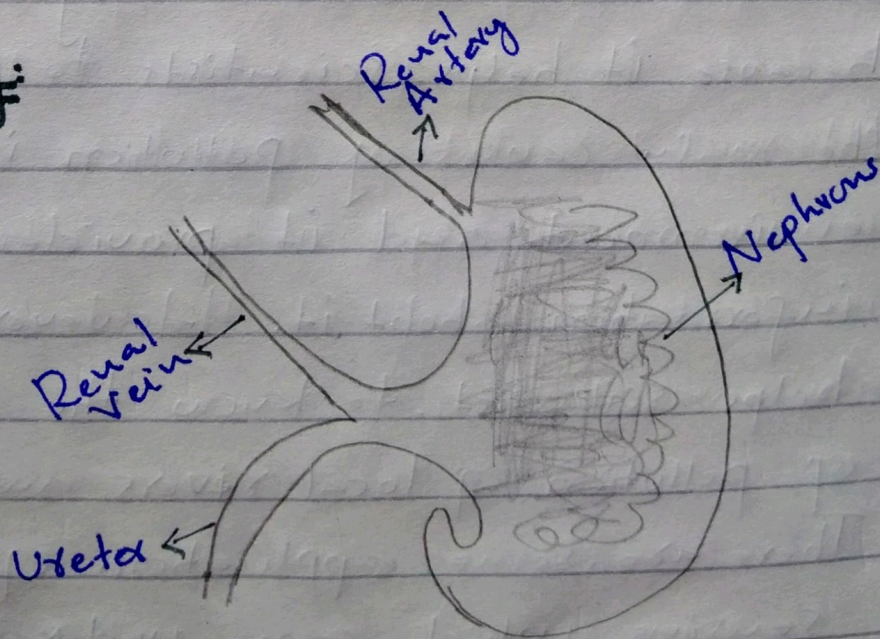


## Answer to Q No 3(a)

### Role of Kidney in Urine formation

Kidney is the main unit of human body for the formation of urine. It has bean-shaped structure. The length of a kidney is 10-12cm and width is 5-7cm. Human drinks water for living a healthy life. The role of kidney is to filtrate Urea and wastage from water and it makes urine within it. However, its functional unit is nephrene. Each kidney of man is formed of about one-million nephrones.

#### Kidney:





## Role of Remote Sensing in Environmental Science

Remote Sensing usage in the environmental science is very important because it helps scientists to identify the main causes of pollution in the environment and it provides relative information about it. However, it helps scientist to know the cause of pollution of local rivers and so on. There are some applications of Remote Sensing which come under discussion.

### 1) Monitoring forests:

Remote Sensing monitors and



Conserves forested areas.

## 2) Management of natural resources

Natural resources are valuable.

Remote Sensing helps to maintain the activities which are used for them.

## 3) Air and water quality

In environmental science, air and water are fundamental units.

Remote sensing detects the causes of pollution and provides relevant information.

## 4) Controlling natural disasters

Natural disasters are the great threat to environment. The

remote sensing is the most powerful technique for controlling and handling drought and desertification etc.

## 5) Weather prediction

Satellites sensors have proved to be effective in predicting weather conditions. However, sensors can track erupting volcanoes which may help relocate people around the victim's mountain.



## Answer to QNo3 (c)

### Green house gases

Green house gases are those gases which are make earth livable for both living and non-living things and make earth cool after resisting infrared radiation from the sun. The green house gases are Carbon dioxide, methane, nitrous oxide and ozone.

### Benefits of green house gases

Green house gases have benefits for human in the form of different usage. For instance, Ozone gas is the type of green house gases. It protects human from the ~~infrared~~ Ultraviolet radiations which comes from the sun. Similarly, methane also helps in cooking food in the domestic houses and so on.

### Green house gases to global warming

Green house gases protect less to human but trap more heat temperature day by day. For instance, Carbon dioxide



has contributed more in the global warming. It has changed the conditions of climate change. Monsoon rain and floods in the sever forms are the great examples of global warming.

## Answer to Q No 3 (D)

### Food Preservation

Food preservation is any of a number of methods by which food is kept from spoilage after harvest or slaughter.

#### Methods of food preservation

There are various methods of food preservation which come under discussion.

##### (1) Heat

Food can be preserved by heat. Because most bacteria, yeast, and molds grow best in the temperature range about 16 to 38°C

##### (2) Cold

Food preservation can be possible through cooling it. Because psychrotrophs



will grow down at  $0^{\circ}\text{C}$ ; when the water in food is completely frozen, there is no multiplication of micro-organisms.

### (3) Drying

Microorganism is healthy growing state may contain in excess of 80% water. If water is removed from the food, multiplication will be stopped.

### (4) Smoke

Smoke contains preservative chemicals such as formaldehyde and other material from the burning wood.

### (5) Radiation

Microorganism are inactivated at various degrees by different kind of radiations like X-rays, micro-waves. Ionizing radiations are each a type of electromagnetic radiation that have been used to preserve food.



## Answer to Q No 6

(A)

Data:

$$\text{Son's age} = n$$

$$\text{Father's age} = 3n$$

$$\text{Current son's age} = 30 \text{ years}$$

$$\text{Current father's age} = ?$$

Solution:

$$3n - 5 = 3(n - 5)$$

$$3n - 5 = 3n - 15$$

$$-3n + 5n = 25 - 5$$

$$2n = 20$$

$$n = \frac{20}{2}$$

$$n = 10$$

Father age is  $90 \text{ years}$  ✓

(B)

Data

$$\text{income tax} = 10\%$$

$$\text{income tax amount} = 1500$$

$$\text{income} = ?$$

Solution:

$$\text{Formula: } \% = \frac{\text{income tax amount} \times 100}{\text{Total amount}}$$

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

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

$$n = 1500 \times 10 = 15000 \text{ ✓}$$



© Data:

Arithmetic mean of 6 numbers = 20

After removing one average is 15

Removing number = ?

Solution:

$$\frac{u_1 + \dots + u_6}{6} = 20$$

$$u_1 + \dots + u_6 = 20 \times 6 = 120 \rightarrow \text{eqn (1)}$$

Now:  $\frac{u_1 + \dots + u_5}{5} = 15$

$$u_1 + \dots + u_5 = 15 \times 5 = 75 \text{ eqn (2)}$$

Again:

Subtract eqn (2) from eqn (1)

$$120 - 75 = \boxed{45} \text{ Ans.}$$

Answer to Q No 8

© Data:

Travels 3km towards South

Travels 4km towards West

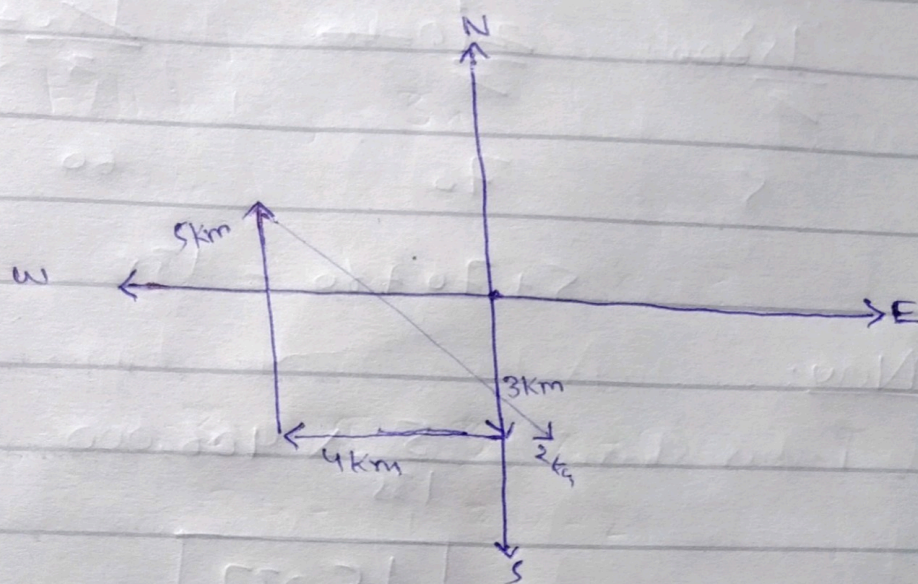
Travels 5km towards North



Travels 2 km towards South-east

How far away its starting point ?

Solution:



Now apply Pythagoras theorem

$$A^2 = B^2 + C^2$$

$$A^2 = (3)^2 + (4)^2$$

$$A^2 = 9 + 16$$

$$A^2 = 25$$

$$A = \sqrt{25}$$

$$A = 5 \text{ km}$$

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Data:

Tahir invest = 15000

Umar invest = 30,000

Usama invest = 45000

Total profit = 406,000

Find share of them = ?



Solution:

$$\begin{array}{rcc} \text{Tahir} & : & \text{Umar} & : & \text{Usman} \\ 15000 & & 30,000 \times 7 & & 45000 \times 4 \\ \hline \frac{15000}{3} & & \frac{210000}{3} & & \frac{180000}{3} \\ 5 & & 70 & & 60 \end{array}$$

$$5 + 70 + 60 = 135$$

Now:

$$\begin{aligned} \text{Tahir share} &= \frac{5}{135} \times 406,000 \\ &= \boxed{15,037} \end{aligned}$$

$$\begin{aligned} \text{Umar share} &= \frac{70}{135} \times 406,000 \\ &= \boxed{210,518} \end{aligned}$$

$$\begin{aligned} \text{Usman share} &= \frac{60}{135} \times 406,000 \\ &= \boxed{180,444} \text{ Am} \end{aligned}$$

④ Data

$$\text{Left property} = 640,000$$

$$\text{Debt} = 40,000$$

$$\text{Burial spent} = 5000$$

$$\text{Widow} = ?$$

$$\text{Daughter} = ?$$

$$\text{Two sons} = ?$$



Solution: Subtract amount of debt & burial from total

$$640,000 - 45,000 \\ = 595,000$$

Now widow's share according to Islamic law:

$$\text{Widow's share} = \frac{595,000}{8} = \boxed{74,375}$$

$$\text{Now} = 595,000 - 74,375 \\ = 520,625$$

$$\text{Sons share} = 260,312$$

$$\text{Daughter share} = 130,156 \quad \underline{\quad}$$