

PART - II

Section - I

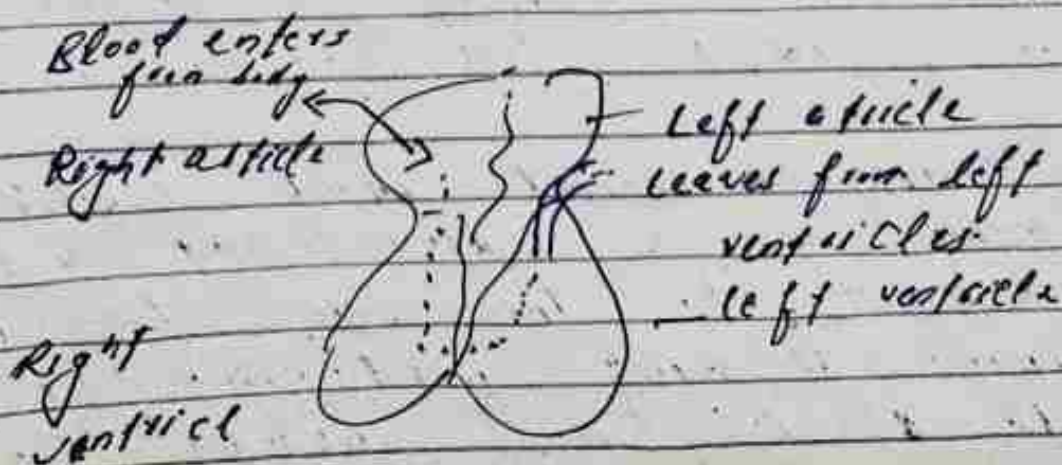
Q. NO. 03

(Ans a)

Double Circulation:

Dual functioning of heart, receiving de-oxygenated blood from lower parts of body and delivering oxygenated blood to the body called double circulation.

Heart consists of four parts. two atricles and two ventricles. Atricles receives blood from the body and the ventricles deliver blood to the body. This is occurring at the same time. That's why called double circulation.



Adaptation of Heart to keep Blood in Double Circulation:

Chambers of Heart:

Right atricle	}	Receives Blood
Right ventricle		
Left atricle	}	Delivers Blood
Left ventricle		

These four chambers of heart are designed in way that they carry out double circulation at a beat.

Movement of Blood in Double Circulation:

De-oxygenated blood from the lower parts of body enters the right atricle and the already present oxygenated blood leaves the heart. In this way blood not only enters in the heart but also leaves in a single beat called double circulation.

Designing of Heart to keep Blood in Double Circulation:

Like a water pump which not only receives water but also deliver it. The same function of pump is being performed by heart to receive and supply blood to body.

(Ans 6)

Liver:

An organ within a body which filters blood and is located slightly above the stomach called liver.

Liver not only filters the blood but also receives the haemorrhagic blood which is being leaked from the blood capillaries. Some biologists consider it a chief chemist.

Functions of Liver that make it a chief Chemist:

1. Like a Chemist Liver Inspects blood:

As chemist is concerned about the composition, changing and modifications of certain chemicals. The same ~~is~~ is being performed by the liver. Liver inspects the blood and do certain modifications in blood by filtering it.

2. Like a chemist Liver adds certain chemicals in blood:

As chemist is authorized to add certain chemicals in the

concerned solutions. The same is being performed by the liver because it add certain metabolites in the blood.

3. Like a Chemist Liver maintains composition of Blood:

As chemist is concerned about maintaining the composition of ~~fluid~~ chemicals the same function is being performed by liver as it maintains composition of blood by adding certain metabolites.

4. Like a Chemist Liver is sensitive to eating spicy foods and hot weather:

As chemist is concerned that the impurities should not be added to the chemicals and to prevent the chemicals from sparking on exposing it to heat. Same is the case with liver as it is sensitive to the spicy foods being taken and exposure of long span hot weather. This causes in the body to yellow string changes in the blood.

Therefore, from the above mentioned ~~pt~~ functions, performed by liver it is called a chief chemist of body.

(Ans c)

Green House Effect:

"In a green house when sunlight enters into house then the house does not allow the light to escape from the green house. This causes warming of the green house. This phenomenon called green house effect."

Green houses range from small to large ones and especially used in agriculture for the purpose of growing over-seasoned vegetables because it traps heat & air it as the weather of outside cold.

Green House Effect is a blessing as it is performing following functions:

1. It is helpful in trapping of heat.

Green house effect is a blessing because it is helpful in trapping of heat. Because of this function the temperature of the green house remain hot. This is essential for performing different functions like over-seasoned vegetables are being grown.

2. It is helpful in maintaining the temperature:

Greenhouse effect is a blessing as it is helpful in maintaining the temperature of greenhouse. This maintenance of temperature is useful for the hot seasoned crops to be grown in cold season.

Enhanced Green House Effect:

After the industrial revolution the proportion of gases in the atmosphere increases which is trapping more heat causing the enhanced greenhouse effect.

Same is the case with the earth. Earth acts as a green house. When the proportion of green houses increases it traps more heat causing the temperature of earth to rise.

Relation of Enhanced Green House Effect in Global Warming.

Global warming refers to the average increase in the global temperature. As in the case of enhanced green house effect and because of trapping more heat results in the increase of global temperature. This is leading to global

(And d)

(a)

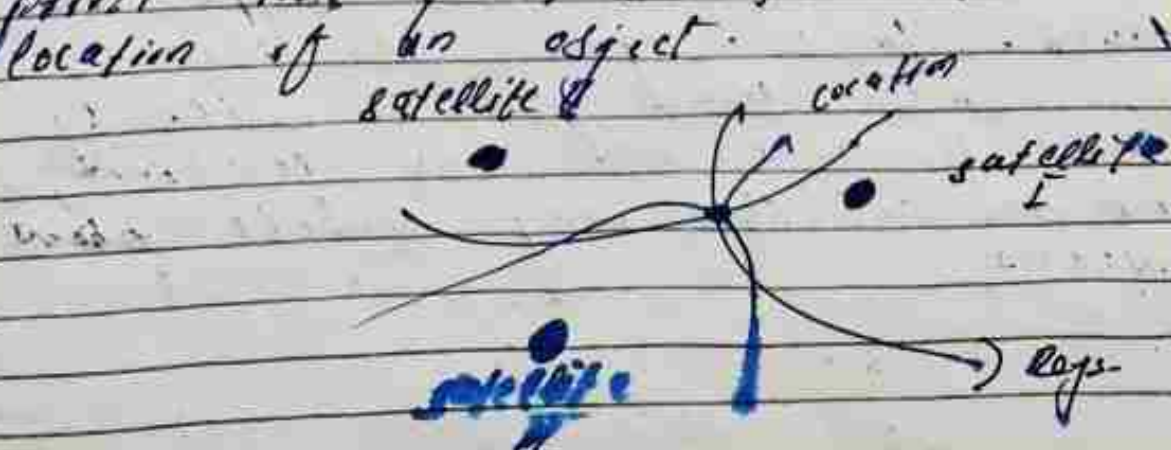
Global Positioning System:

Combination of satellites functioning to locate an object present ~~and~~ ^{where} ~~where~~ ^{now} at anywhere in the earth called global positioning system (GPS).

It is mostly used and developed by the US army to ~~under~~ ^{under} surveillance of its soldiers. Now, it has been used by every country.

Working of GPS:

In the GPS there exist a combination of three or more satellites. All the satellites by emitting rays form a triangle like shape. When all the rays of the satellites meet at a single point this point is the actual location of an object.



(Ans b)

Mobile phone:

An electronic device used to transmit and receive information via electronic radio waves using antenna's called mobile phone.

There exists a system of antenna's which are the source of the signals. These signals connect the mobile phone devices worldwide and transmit signals.

Working of Mobile phone:

Mobile phone works on the principle of sending and receiving messages and calls from one phone to another. When one intends to call to someone and the receiver has the mobile connectivity. Then the message is transmitted through into the electric signals which is carried out to the target distances. These signals are converted to the messages or voice by the receiver on the receiving phone. In this way mobile phone works.

Q. NO. 04

(Ans a)

Floods:

Excess of water due to heavy rains or any other physical phenomenon which causes the water to pose damage to public property called floods.

Floods occur due to the excessive rains or the breaking of lands causes a huge deluge of water to come to the living areas and damaging infrastructure and lives.

Main Causes of Floods:

1. Excessive Rains:

Excessive downpour is the leading cause of floods. Recently, IMD has issued warning of floods in the submer where rainfall occurs 290mm breaking the record of 77 years.

2. Excessive Melting of Glaciers:

Glaciers are melting at a greater

pace due to the climate change. This causes the excessive water to come to the canals causing floods.

3. Less Number of Dams:

When there is excessive water it should be stored in Dams for future use and to prevent it from floods. But because of less dams less water is stored and remaining causes floods.

Difference between floods of 2022 and Super Floods of 2010:

The main difference between the floods of 2022 and super floods of 2010 lies in the fact that the flood of 2022 caused by excessive rain and melting of glaciers and it causes a less damage. While the floods of 2010 was mainly because of breaking of dams and causes more destruction.

Role of NDMA:

National disaster management authority is concerned in early warning of natural disasters and after the disaster provide rehabilitation facilities to the victims of floods.

(Ans b)

Star

Planet

Definition

Star is a ball of gases and emitting own light.

Planet is a rocky type and does not emit light.

Composition

Stars are composed of mainly hydrogen and helium and undergoes fusion reactions.

Planets are composed of rocks which consists mainly of fossil fuel fuels and does not emit light.

Revolution

Stars are fixed and forms the base of galaxies.

Planets are revolving around the stars and form the basis of solar system.

Lightening

Stars mainly emit their own light due to the fusion reactions taking place.

Planets absorb the light from the sun and does not have own light.

Importance

Stars forms the bases of light in the entire universe helpful in sustaining life on earth and other planets.

Planets are cool and form the bases of life and support life.

Star Becoming a Black Hole.

Stars when they have used all of their fuels like hydrogen and helium and further have nothing to burn and emit light. When after a long time a star has exhausted its fuel then it becomes a black hole. Further, it is no longer able to emit light.

(Ans 6)

Chemical Bonds:

Electrostatic force of attraction between the different atoms enabling them to form a molecule called chemical bonds.

The chemical bonds are essential for the stability of atoms and encourages more forms of molecules to be formed.

Reasons of Forming Chemical Bonds:

1. To achieve stability

Atoms or ions in their isolated states. They form bonds with other atoms to achieve

the stability.

2. To complete valence shell

Valence shell or outermost shell remain incomplete when they are in isolated states. To complete their valence shell atoms form bonds.

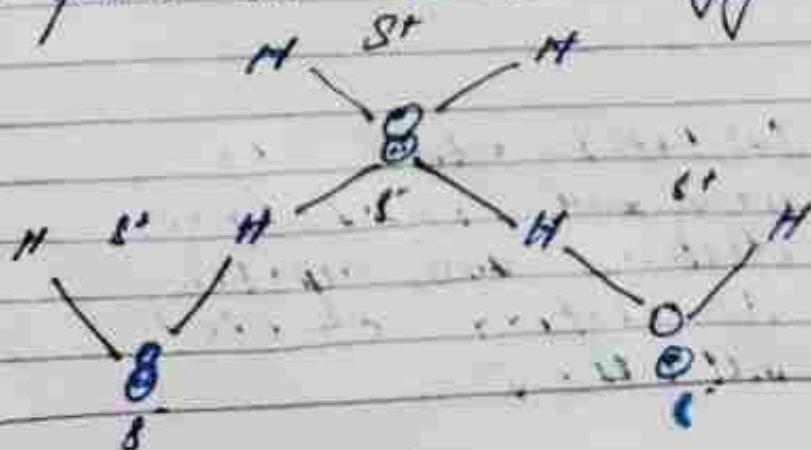
3. To attain configuration of nearest noble gas.

Atoms form chemical bonds to attain the configuration of nearest noble gas. For example sodium attain the configuration of Argon.



Structure of Water:

Water consists of two hydrogen and one oxygen atoms and forms strong hydrogen bonds because of presence of 2 hydrogen atoms and lone pairs on each oxygen atom.



(And d)

Conductors:

Substances able to conduct electricity because it possess free electrons called conductors.

Most of the metals possess free electrons and are capable of conducting electricity. Iron, aluminium are the best examples.

Semi-Conductors:

Substances which partially conduct electricity and partially obstruct it due to the presence impurities called semi-conductors.

Semi-conductors mainly composed of carbon made chips used in the computers.

Metals:

Substances which are hard and possess free electrons and capable of casting called metals.

Iron is the most important metal capable of rusting.

Plastics:

Plastics are composed of many monomers and are capable of attaining many shapes.

These comes in various forms like thermoplastics and thermosetting. Nylon is important plastic.

Ceramics:

Ceramics are composed of baked soil or high temperatures and form the different utensils.

The objects used in the washroom like wash basin and many utensils used in kitchen like cups are the examples of ceramics.

SECTION-II

Date

Q. NO. 06

(Ans a).

Data:

Enrolled pupil in January = 850
" " " Feb 2018 = 1120.

To Find:

% age increase in enrollment = ?

Calculation:

$$\% \text{ increase} = \frac{\text{Final value} - \text{Initial}}{\text{Initial}} \times 100$$

$$= \frac{1120 - 850}{850} \times 100$$

$$= \frac{270}{850} \times 100$$

$$= 31\%$$



(Ans b)

Data:

Age of son = 5 times of father
Sum of square of this ages = 114

To Find:

Present age of son = ?

Calculation:

let age of son = S
" " " " Father = F

$$F = 5S \quad - \textcircled{1}$$

$$(F-2)^2 + (S-2)^2 = 114$$

$$F^2 + 2F - 4 + S^2 + 2S - 4 = 114$$

$$(5S) + 2(5S) - 4 + S^2 + 2S - 4 = 114$$

$$5S + 10S - 4 + S^2 + 2S - 4 = 114$$

$$17S + S^2 - 8 = 114$$

or

$$S^2 + 17S - 8 = 114$$

(Ans C)

Date:

No. of heads = 48

No. of feet = 140.

To Find:

No. of hens = ?

Calculations:

As one hen has two feet
So the no. of hens are $\boxed{70}$

(Ans d)

Data:

Speed of first half: 40 km/h
Speed of second half: 60 km/h

To find:

Avg. speed of Car = ?

Calculations:

$$S = VT$$

So,

$$\frac{40 + 60}{2} = \frac{100}{2} = \boxed{50 \text{ km/h}}$$



Q. No. 08

Data:

Milk & water ratio = 2:1

To find:

Quantity of water = ?

Solutions:

$$\text{Milk} = 2x$$

$$\text{Water} = 1x$$

$$\text{Total} \quad 2x + 1x = 100$$

Milk = 1L
Water = 2L
2L + 1L = ?

By solving this 40 liters of water added.

(Ans c)

Brothers and sisters: A B and C
C and D = Father and Mother
So,

D is the father of A

(Ans d)

ROAR — URODU
URODU — RORR

