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G. Science & Ability
Test # 01.

QUESTION # 03.

1 HEPATITIS:-

Hepatitis is an inflammatory disease of liver characterized by the presence of inflammatory cells in tissue of the organ.

- It can be self limiting and progress to fibroses and Cirrhosis
- Hepatitis can be ~~Acte~~

Acute

Lasts less than six months

Chronic

Persists longer.

2 CAUSE OF HEPATITIS:-

The causative agent of hepatitis is a **VIRUS** therefore it is known as viral disease or viral hepatitis.

- The virus may be composed of either **DNA** or **RNA**.

- Hepatitis may also sometimes caused

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by malarial parasite, Ascarases
and Bacteria

3 Symptoms of Hepatitis

- 1- Enlargement of liver
- 2- Weight loss
- 3- Pale colour of skin
- 4- Peripheral edema
- 5- Accumulation of fluid in Abdominal body
- 6- Pale eyes etc.

4 Preventive Measures

Preventive measures of Hepatitis
includes

- 1- Proper Hygiene
- 2- Dispose off of faeces
- 3- Use of sterilized needles
- 4- Care during blood transfusion
- 5- Proper blood checkup
- 6- Taking care of ones diet.

5 Summary

1. Hepatitis
2. Causes
3. Types
4. Symptoms
5. Diagnosis
6. Prevention

Inflammation of liver.

Weight loss, Virus, Bacteria, No proper Hygiene

HAV, HBV, HCV, HDV, HEV

Pale colour of eyes, Weight loss, edema

ELISA Test, PCR

Hygiene, dispose off faeces
proper blood checkup, sterilized needles

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Part B

Explain the Solar System:

Solar System:

Solar system is a system in our Galaxy "milkway" consists of a giant "Sun" in the middle, around which total "eight planets" are revolving in their elliptical paths, along with other subplanetic bodies scattered around holding the gravitational forces.

So our solar system consists of:

- 1- Sun
- 2- Planets
- 3- Subplanetic bodies.

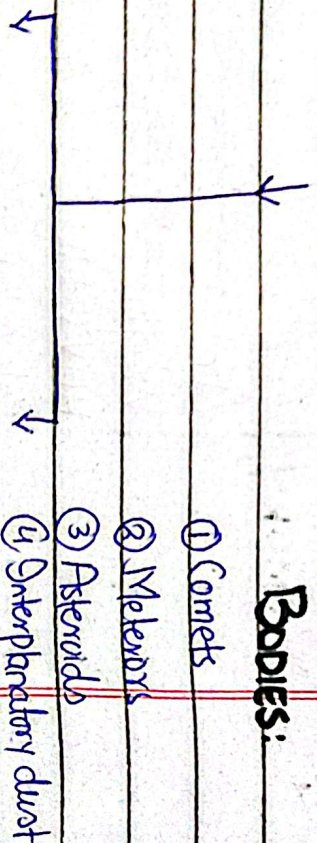
Solar System

SUN

PLANETS

OTHER

BODIES:



Terrestrial Planets

Gaseous planets

- ① Mercury ③ Earth ⑤ Venus ④ Mars
- ② Jupiter ⑥ Uranus ⑦ Saturn ⑧ Uranus

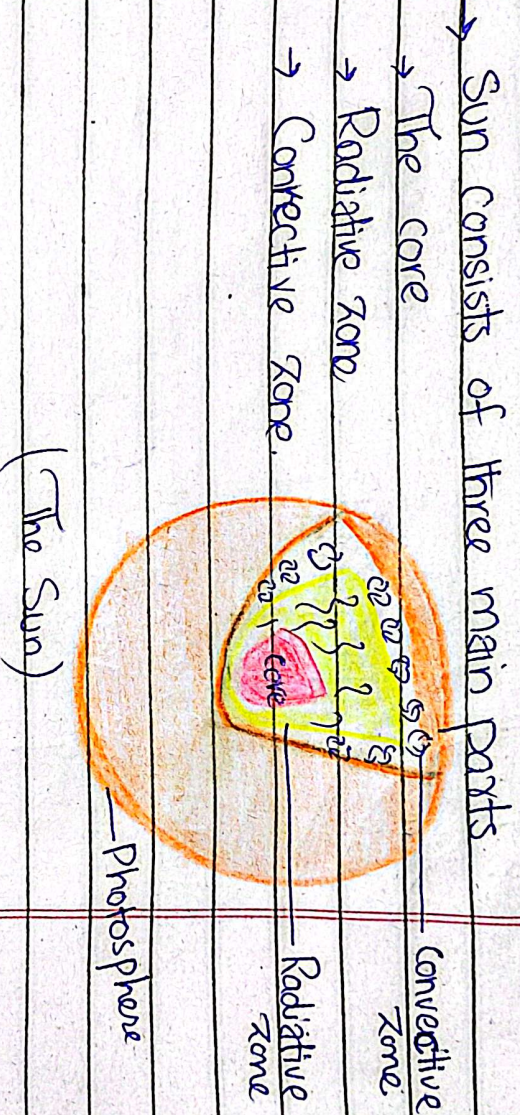
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i. Sun:

- A giant ball of hot gases of Hydrogen and Helium
- Sun is present at the centre of solar system provides heat and light to the planets.
- Fusion and fission reactions occurs in sun and through radiation this heat is transferred.



ii PLANETS:

In solar system planets are structurally divided into.

① Terrestrial plants and Gaseous planets

↓
Rocky in Nature

↓
Gaseous in nature

↓
Closes to Sun

↓
Away from sun

↓
Heavy weight

↓
Light weight.

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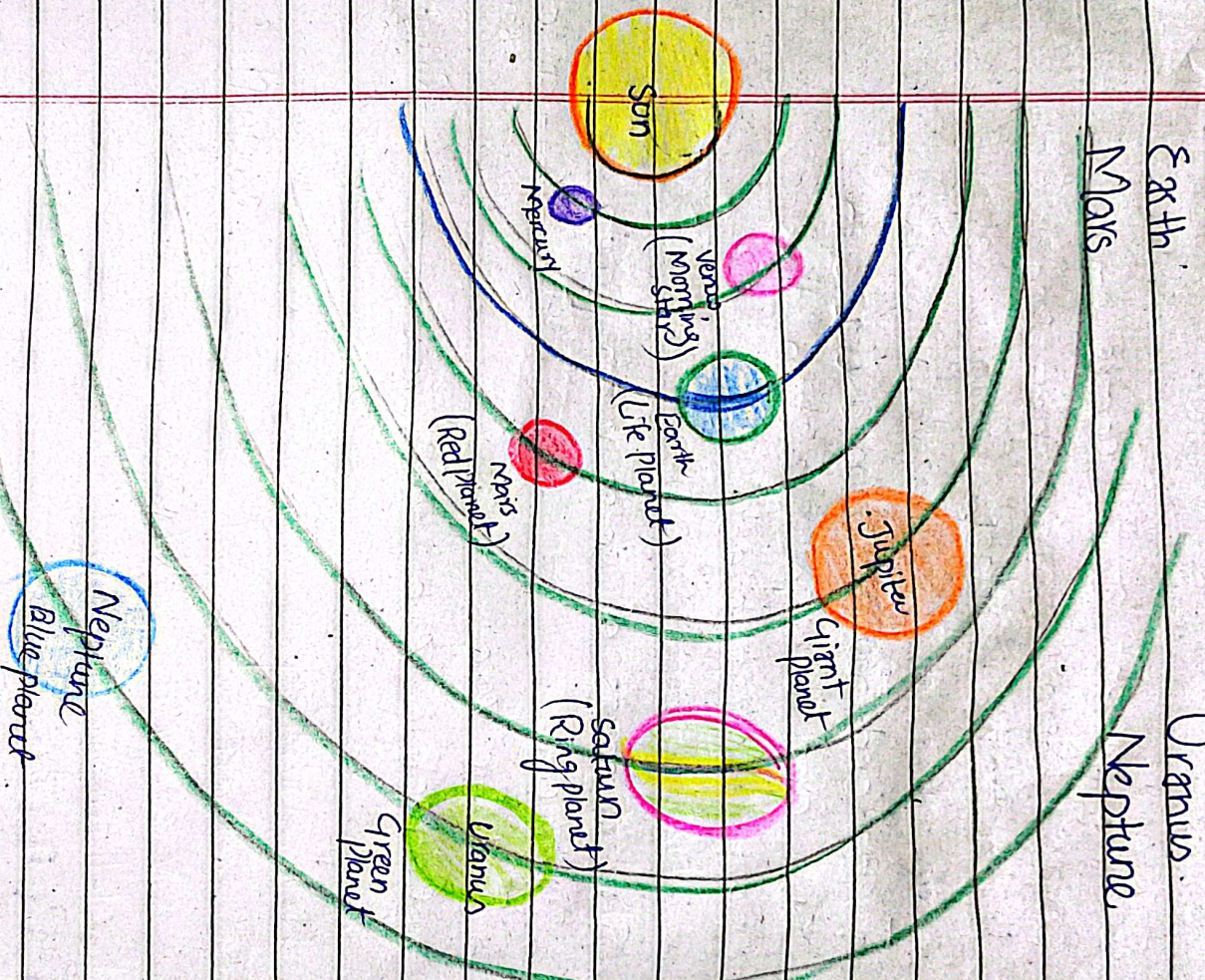
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Terrestrial planets are

Mercury
Venus
Earth
Mars

Gaseous planets are

Jupiter
Saturn
Uranus
Neptune



II Other Interplanetary Bodies

Other Interplanetary bodies that consists of Solar system are

- 1 Comets (orbits around sun consists of nuclei, tail and gaseous coma.)
- 2 Asteroids - Non planetary non lunar objects
- 3 Interplanetary dust gaseous in form present in Solar system.

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Part C

GASEOUS EXCHANGE IN HUMAN BODY:

Gaseous exchange in human body occurs through respiration process of Inhalation and Exhalation.

Gaseous Exchange in Human Body

① Main Organ Responsible
↓
(Lungs $\Rightarrow$ Alveoli)

② The PATH THAT IS FOLLOWED
↓

Nostrils $\Rightarrow$ (Inhale air with O_2)
↓

Pharynx $\Rightarrow$ (Pushes hot air towards) Larynx
↓

Larynx $\Rightarrow$ (with the help of Cilia and Mucus transferred the air downward.)
↓

Trachea $\Rightarrow$ to Bronchi
↓

Lungs $\Rightarrow$ Bronchi - Bronchioles
↓
Alveoli

Air with O_2 is moved towards Alveoli and there exchange of gases occurs

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Alveoli :- The Main Organ WHERE EXCHANGE OF GASES OCCURS.

Alveoli is a grape shaped tissue in lungs where the final exchange of gases between human body and outer environment occurs.

The deoxygenated blood mixes with the oxygen that has been inhaled through nostrils into lungs - in pulmonary artery.

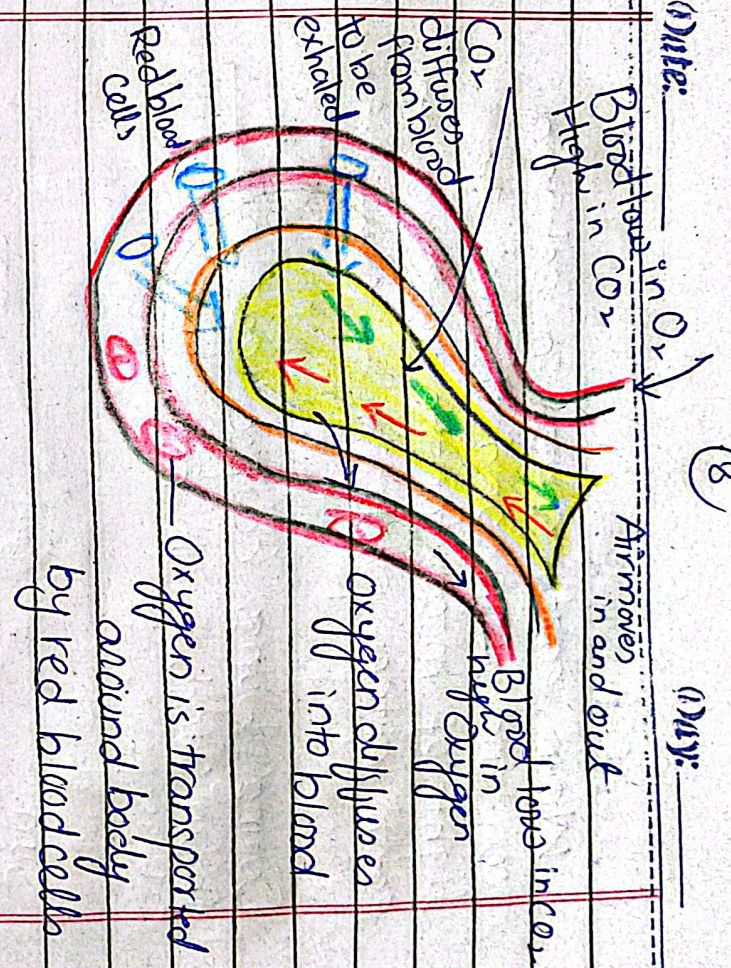
Alveoli is rich in tiny capillaries which is the site for exchange of materials. The oxygen from blood diffuses via capillaries enters the mainstream blood and in exchange carbon dioxide is removed and sent back via capillaries into veins.

Through pulmonary veins then capillaries than alveoli and then through same passage, CO₂ is exhaled through nostrils into environment and in this way exchange of gases occurs.

(Note: _____)

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(My: _____)

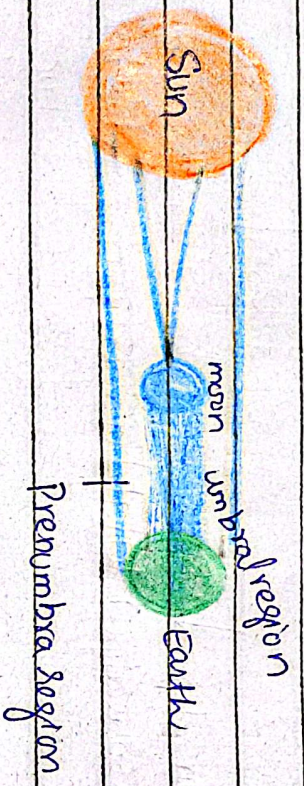


Exchange of Gases through
Alveoli

PART D:

Solar Eclipse:-

When a moon comes in between the sun and earth and cast a shadow on the earth by blocking the light coming from earth is known as solar Eclipse.



Solar Eclipse

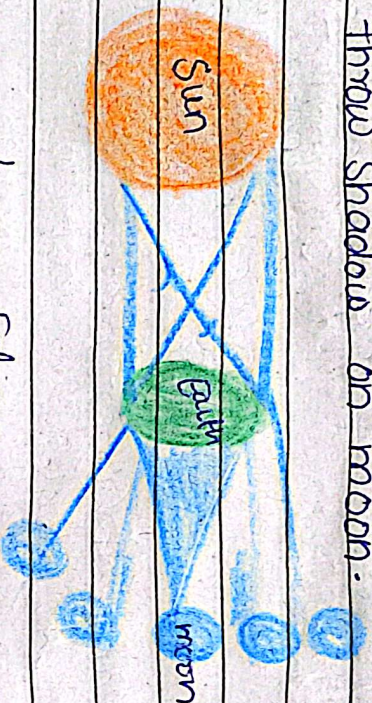
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ii LUNAR ECLIPSE:-

When earth comes in between moon and sun and obstruct the light of moon for the observer of earth either partially or completely.

During lunar eclipse earth ~~throws~~ throw shadow on moon.



Lunar Eclipse

Types of Solar And Lunar Eclipses:

There are 4 main types of solar eclipse while lunar eclipse has two main types.

Solar Eclipse Lunar Eclipse

- | | |
|-------------------------|-------------------------|
| → Total solar Eclipse | → |
| → Partial solar Eclipse | → Total Lunar Eclipse |
| → Annular | → Partial Lunar Eclipse |
| → Hybrid | → Lunar Eclipse |

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1 Total Solar Eclipse

When the moon completely blocks the sun's bright face. It happens when moon is close enough to earth to cover the entire solar disk.

2 Total Lunar Eclipse

When the earth covers the whole moon in its shadow casting the whole umbral region in darkness.

3 Partial Lunar Eclipse

When the moon moves out of umbral region, it appears as partially shadowed by earth is considered partial lunar eclipse.

4 Partial Solar Eclipse

When the moon only covers a portion of sun, making it look like half taken bite from a fruit.

5 Annular Solar Eclipse

When the moon is too far from earth but centered in front of sun in order to cover the earth completely, so a ring of fire is visible around moon.

6 Hybrid Solar Eclipse.

It is a rare event starting from annular type and changes to total solar eclipse.

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(1) My: _____

QUESTION # 02

DIFFERENCE BETWEEN PLANT AND ANIMAL CELLS:

Animal Cell

Plant Cell

1 Animal cell is Eukaryotic in natural. ② Plant cell is prokaryotic.

2 Animal cell does not contain cell wall. ② Plant cell consists of cell wall.

3 Animal cell has a number of vacuoles and small in size. ③ Plant cell has only one huge vacuole.

④ Centrioles are present in Animal cells. ④ Plant cells does not contain centrioles.

⑤ No plastids are found in animal cells. ⑥ Plasmids are the main component of Plant cells.

⑥ Food is stored in the form of Glycogen. ⑥ Food is stored in the form of starch.

(12)

(a) Note: _____

(b) Why: _____

- | | |
|---|---|
| ① Animal cell respire with the help of Oxygen and glucose breakdown | Plant cell make food through process of photosynthesis using CO_2 and water. |
|---|---|



Part B

URINE FORMATION IN HUMANS:

Urine formation in humans occurs through three main processes with the nephron, the functional and structural unit of a kidney.

Three steps of URINE FORMATION

- ① Glomerular Filtration: Blood enters in the glomerulus under high pressure and the water & other small solutes are forced out of blood into Bowman's capsule, while blood cells and proteins remain in capillaries.
- ② Tubular Reabsorption: The filtrate in Bowman's capsule moves through renal tubules where other essential

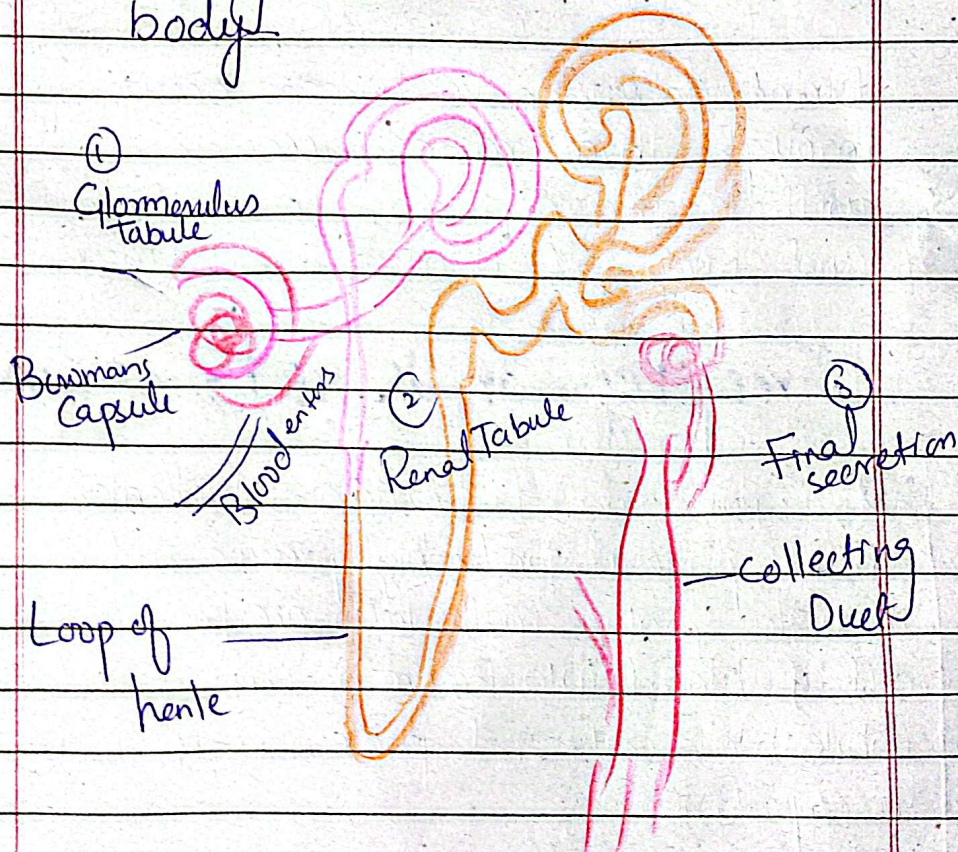
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substances such as glucose, amino acids etc are transferred back into blood stream.

③, Tubular Secretion:-

Finally, the waste products such as Hydrogen ions, potassium and drugs are secreted by tubular cells into the filtrate. These secretory items combine with filtrate to form Urine. The urine passes out of the nephron tubule into collecting duct and then out of body.



Nephron in Urine formation

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PART D

CERAMICS

Ceramics are wide range of inorganic, non metallic materials that are highly resistant to heat and corrosion.

1 Properties

- 1 Hard and stiffer than steel.
- 2 Heat resistant
- 3 Less dense than metals & their alloys
- 4 Raw materials are inexpensive and plentiful.
- 5 Manufacturing requires high temperatures.
- 6 Raw Materials

Silicon with their oxides

2 Types of Ceramics

Ceramics are divided into two major classes.

Traditional Ceramics

They consists of
Clay products
Silicate glass and
Cement.

Advanced ceramics

They are The
Carbides of Silicon (SiC)
pure oxides (Al_2O_3)
Nitrides
and non silicate glass etc.

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(3) Applications of Ceramics

Ceramics are used in wide range of products.

PRODUCT AREA

PRODUCT

1 Aero space

Space shuttle,
thermal batteries,
high temperature
glass windows.

2 Medical
(Bio ceramics)

- Orthopedic joints
replacement.
- Dental restoration.

3 Computers

Insulators, resistors,
Capacitors, Super
conductors.

4 Communication

microphones,
TV, Radio components.
fiber optics.

5 Consumer User

Pottery, windows
ceramic tiles.