Question No 4

a- Explain the role of heart and blood vessels circulation

Circulatory system ... responsible for circulation of blood in the body. Moreover, it also helps in distribution of essential materials ...

blood circulation is carried out by heart with the help of blood vessels. In this regard, role of heart in circulation is as follows

Role of Heart

Heart is the main organ responsible for circulation of blood. ... Gravity ... the Strongest ... in human body.

Heart mainly comprises of three layers including:

a) Peri cardium

b) Myocardium

c) Endocardium

These above given layers are mainly responsible in ... Support ... and supply the vein

Additionally, there is presence of four chambers in the heart including ... and right ventricles - these chambers play vital role by Pumping blood ...

Dos and Don'ts for the General Science & Ability Paper

Hi there — you've prepared well! Remember, knowing the content is one thing, but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind.

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet. Often, a question has two or three parts, and the marks are divided accordingly — so address each part fairly.

2. Manage your time wisely — you have about 35 minutes per full question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.

3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.

4. Neatness matters — keep your handwriting clean, avoid cutting or overwriting.

5. Mind your spelling and grammar — while GSA doesn't deduct marks for these, your expression leaves an impression.
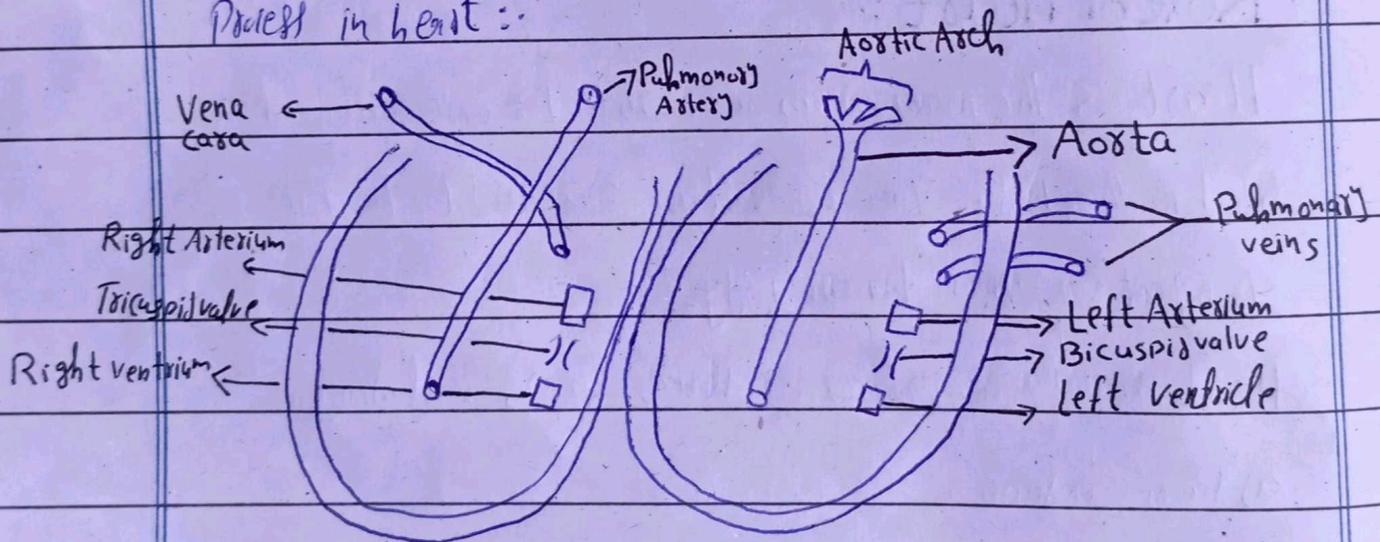
6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Good luck for CSS 2026 — you're going to ace it, in sha Allah! 🌟

Constant contraction and relaxion, which mainly takes
Place due to current generated with the help of nodes.
Similarly, there is presence of two valves namely
Bicuspid valve and Tricuspid valve. These valves
help in stopping the back flow of heart.
Finally, there are pulmonary arteries and pulmonary
vein and vena cava, that toasfed blood into the heart.
Above in view, following diagram Can explain the circulation
Process in heart:-

Vena cava | Pulmonary Artery | Aortic Arch | Aorta
Right Arterium
Tricuspid valve
Right ventrium
Pulmonary veins
Left Arterium
Bicuspid valve
Left ventricle

Approximately 70 ml blood leaves the heart to the
body during one beat.
Normally, a heart beats 72 times in a minute.
There is presence of 5 litre blood in human body that
circulates in the body with the help of heart, however,
the whole requires blood vessels to carry
the blood in the body.

Role of Blood vessels :-

Blood vessels are any ~~maper~~ responsible to carry the blood in to the body that get pumped by the heart-

There are three types of blood vessels including :-

Arteries :-

Arteries are the strongest blood vessels in the body that carry blood from heart towards body-

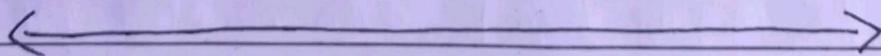They mainly carry oxygenated blood except the Pulmonary artery-

Veins :-

Veins are responsible to carry blood from body towards the heart- veins mostly carry deoxygenated blood except the pulmonary veins-

Blood pressure remains least in veins.

Capillaries :-

Capillaries are thinest blood vessels that carry both oxygenated and deoxygenated blood-

They are like junctions between the Arteries and veins-

b. What is cyclone- Define formation of cyclone-

Cyclones are mainly large scale low pressure weather systems that form over warm tropical waters in the mid latitudes and move accross the earths surface-

Cyclones are of mainly three types-

Tropical cyclone :-

Tropical cyclone mainly form over warm water-

Water temperature has to be 26.5°C to a depth of 50 meters-

Warm water mainly moist and rise in in the form of air, while creating low pressure beneath it-

Due to earth rotation the rising air begans to spin-

The system becomes organized causing most intense winds and rain-

Middle latitude cyclone :-

These cyclones form along the boundary between warm and cold air masses- The difference in temperature & density between air masses causes the front to wave and develop a area of low pressure its crest-

This low pressure begin to ... rotate creating the Comma shaped storm-

C- Enlist the functions of

Carbohydrates :-

Carbohydrates are the main source of energy for the body.

Carbohydrates are also responsible for functioning of brain and some other organs.

Proteins :-

Proteins are also source of energy for the body.

Moreover, Proteins are responsible for boosting immune system, muscele ~~energy~~ strength, hair and skin betterment.

Fats

~~Fats~~ fats are also the source of energy for the body. However they help in absorbtion of fats soluble vitamins too.

Calcium

Calcium mainly strengthens the bones and teeth in the body. Moreover calcium also play vital role in muscle strengthing.

Iron

Iron is responsible for formation of blood in the body and to support some organ. It saves body from anemia.

d- How remote sensing can be employed for environmental process.

Remote sensing is a process used to gather data of remote area or unaccessible area with the help of remote sensors and a sattelite.

following method can be utilized for environmental process.

1. Remote sensing mainly requires the waves coming from sun and a target of interest.

2- When the sun waves interect with the target of interest, they are supposed to reflect back.

3- During the above process a satelite employed above that area cathes the reflected rays.

4- Atlast these rays are converted into image forms with scientific method and send back to the earth.

5- This is how the scientists look over any changes in these remote area.

RS
Remote Sensors

satelite

sun

waves

Target of interest
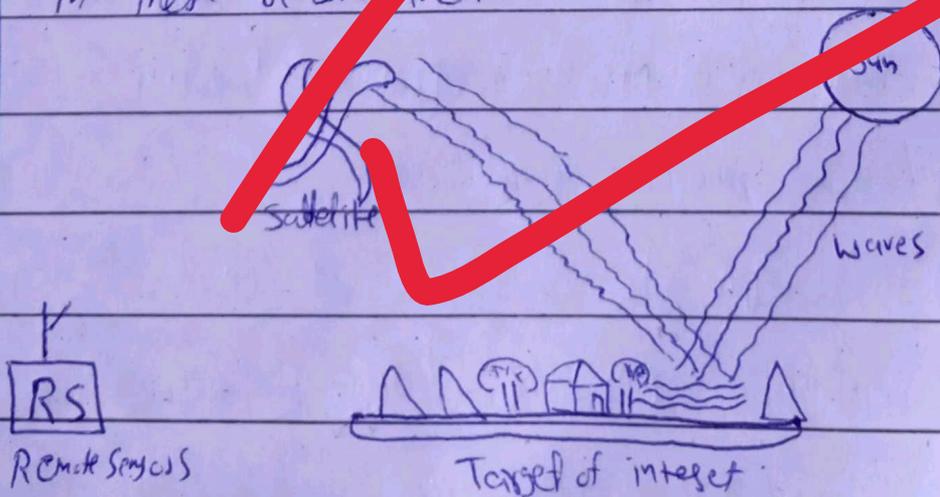
Employment for environmental Process.

By the help of previously mentioned procedures, following environmental benefits can be achieved thrgh remote sensing:

1- Disaster Management by anylyzing the risk thryh data.

2- Can figure out the causes of Pollution

3- Time saving Process for sustainable enviml effrls.

4- Agricultural mohitiy can be done of remote sensing

5- Accessing remote areas easily.

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Question No 5

a- What is DRM? Give importance of Risk management in DRM.

Disaster Risk Managent is the process used inder the identify the risk of any disaster before its occurence and to act proactively in oder to minimize the less.

Disaster Risk Managent requires dedicated authorits who can pofr this action by the help of data and other technical equipments.

Moreover, it also requires well trained staff who are capable to rescue people and livestock during the disaster. It is prudent to mentioned that the authority delegated the DRM job myt have adequate funds and advance technology to act proactively rather than reactively.

Importance of DRM -:

1- DRM helps in predicting the risk in order to save lifes of human and livestock.

2- DRM helps in analyzing the reasons behind the disasters in order to take necessary measures.

3- DRM helps in agricultural management -

4- DRM also helps in sustaible environmental development to prevent future disasters.

5- DRM can minimize the loss to economy by preventive measure to mitigate the risk.

6- DRM can help in minimize human interference in the natural setting. that can help in mitigating disasters.

7- DRM helps to rescue the stranded population in the remote rural areas.

b- Define biofuels. Explain production of biodiesel and bio gas.

Bio fuels are those fuels that are derived from bio mass. Including animal waste (dung), Plants waste, Crops waste, Sugar rich sources (sugar cane & sugar beet) and finaly oil rich resources like mustard seed or soya beans.

Bio fuels are considered to be safer for enlironment as it released less green house gases.

Biofuels are also thought to cheaper than standard fuel.

Production of bio diesel :-

Bio diesel is mainly Produced witho help of amimal or Plants waste, following diagram merits attention.
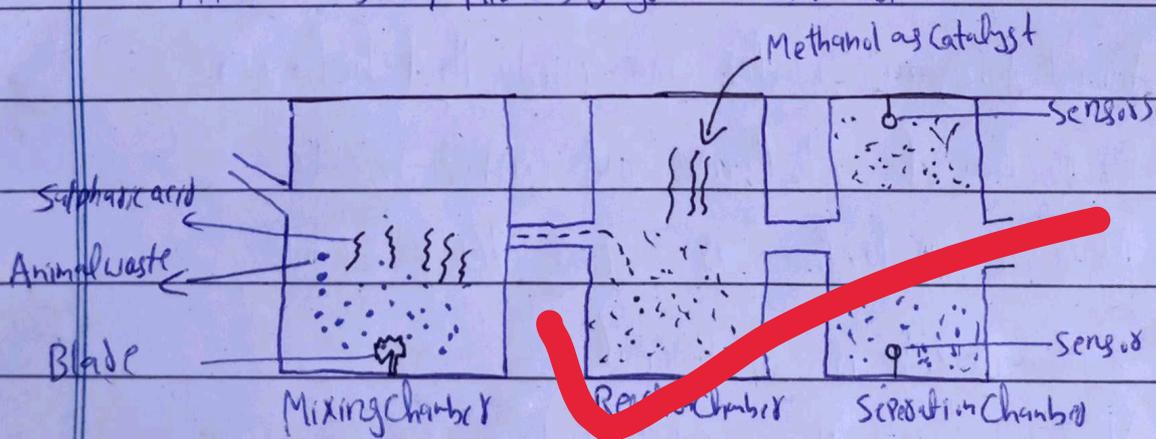
First of all the animal waste is mixed with sulphuic acid witheth help of blades.

Then in the reaction chamber methanol is added as a Catalyst.

A the end, there with the help of sensors fuel is

separated from other product.

At last, standard diesel is mixed to make it Bio fuel.

Bio Gas Production:

Bio gas is mainly used for kitchen purpose and also

be used by energy sector. It is also environmently

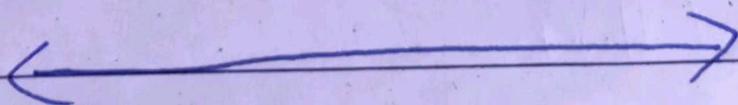friendly. Most Preferable item used to produce

Bio gas is Animal Dung.
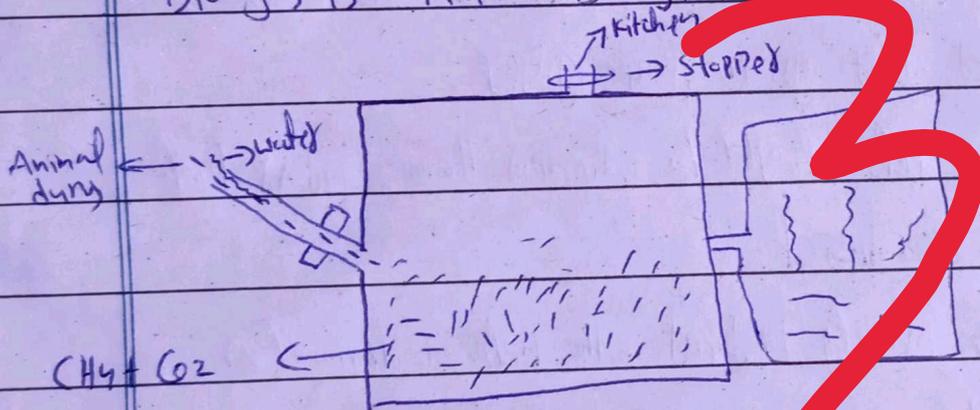
Animal dung and water are added that help in

production of Methane and Carbon dioxide.

Methane production is about 70 % while

Carbon Dioxide is 3 Percent.

Methane gas is then used in kitchen for cooking

and other necessary purposes.

C- What is Digestive System - Explain role of Stomach and Small intestine -

Digestive system is mainly responsible for break down of large food Particles into small or absolute food Particles - food Particles include Carbohydrates, Proteins and Lipids.

Main organs responsible of food digestion :-

a) Oral Cavity

b) Stomach

c) Small intestine

d) large intestine
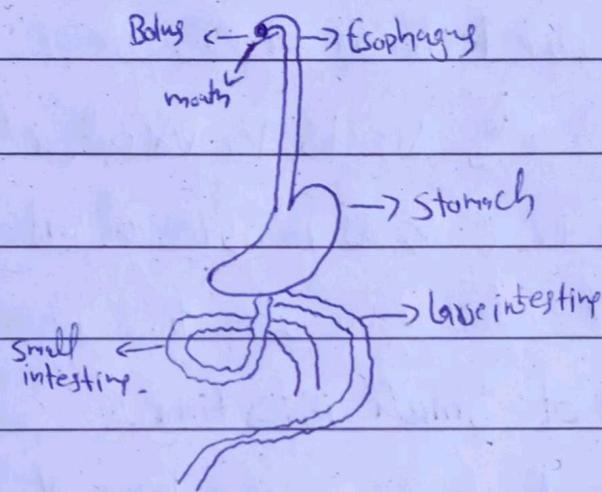
Role of Stomach

Stomach is J shaped organ in human body that contains three layers including outer layer, inner layer and middle layer responsible to provide shape Protection and support to Stomach.

Stomach has two opening namely Cardiac sphincter and Pyloric sphincter. Bolus enter into stomach through Cardiac sphincter and leave through pyloric sphincter. Stomach released following important things to help in digestion :-

Mucus

(a) Protection of innermost layer

Hydrochloric Acid

To kill all the ter microorganism in the body.

Pepsinogin

Mainly inactive. Its active form pepsin (enzyme) is responsible to break proteins into polypeptides.

Stomach only digests 10 percent of food - food remain for 4 to 6 hours in stomach and leaves towards small intestine in semi fluid form.

Role of Small intestine:.

Almost 90% digestion takes place in small intestine

It is 6 meters long and has 3 main parts-

a) Dejnum

b) Jejunum

c) Illeum

Dejunum :.

It mainly releases its only enzyme Enteritis

a) Pancreas releases pancreatic juice

b) Amylase to break remaining starch into maltose

c) Lipase to break fats into fatty acids

d) Tripsinogen Tripsin converts protein into dipeptide

e) Sodium bicarbonate neutralizes acidic nature of chyme

Liver :- Bile converts remaining fats into fatty acids.

Jejunum :-

Amino Pasdogen Converts peptides into Polypeptides into dipeptides

Erypsin Convert dipeptides into Amino Acid

Lipase Converts fats into fatty acids.

Lactose Converts Lactose into glucose

Maltose Converts Maltose into glucose.

Illeum :-

villi :- absorbs the nutrients and helps in transfering the nutrients into blood.

$\longleftarrow \text{-----------------} \longrightarrow$

1- **Define Plastics** - Give their properties applications and environmental risks

Plastics are also known as polymers that are useful due to their unique nature.

Properties :-

Plastics are flexible and can be shaped according to the requirement.

Plastics are durable and are capable to be used as bags or luggage carriers. Moreover they can carry huge amount of weight.

Plastics are also perferably made due to their

unique properts of being light in weight.

Environmental Risks:-

1- Plastics are polymers can not decompose either by incineration or composting.

2- Plastics life is __ making them permanent risk for biodiversity and eco-aquatic life.

3- Plastics mainly contribute in land pollution and water pollution.

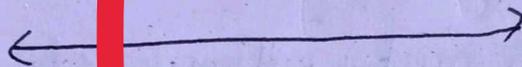4- Plastics mainly clogg the drainje system causing urban flooding.

$\longleftrightarrow$
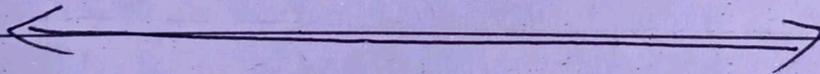
Question No 8

Part A_

As per the given Condition, following merits attention

- A is to the right of B = [B] [A]

- B is to the right of C = [B] [A] [E] [C]

- B is to the right of D = [D] [B] [A] [E] [C]

So A is in the middle.
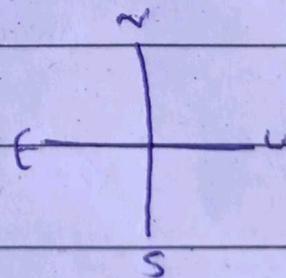
←————————————→

Part B

Runing towards north = 4km
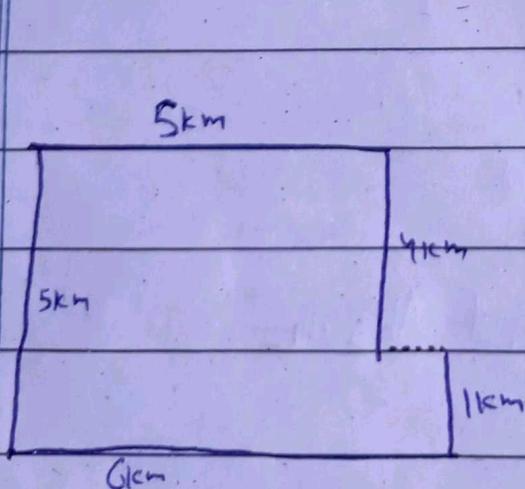
Turning left (East) = 5km

Again turning left (South) = 5km

Turning left (West) = 6 km

final left turn (North) = 1km

Above in view following diagram is to be made_

5km

5km 4km

1km

6km

N

E → ← W

S

Q1. How many km are you from the pla[ce] ... [st]arted

I km away from Starting Point

Q2. In which direction will you be [ru]nning while finish[ing] —

While finishing, I will [be] running towards North direction

Q3. After taking 2nd turn, in which direction will you be running —

After 2nd turn I would be running towards West direction —

Q4. from finishing Point if you have [to] reach the Starting
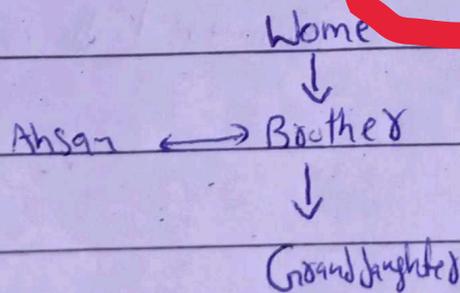
Point, in which direction will you have to run —?

I have [to] run toward [west] direction to reach my starting

Point

_____

Question No 6

A.

As per the given conditions, follow[ing] relations are intimated

Wome[n]
↓
Ahsan ⟷ Brother
↓
Granddaughter

Thus the Women [is] [bro]ther [of] Ahsan —