

General Science and Ability

Part - II (Section-A)

Question no 4

Part a

Role of heart and blood vessels in circulation

Heart

Heart is blood pumping organ found in human body that transfers oxygenated blood throughout the body and transfers deoxygenated blood towards the lungs.

Blood vessels

Blood vessels are the pipelines found in human body that carry oxygenated and deoxygenated blood away and towards the heart respectively.

Role of blood vessels and heart in circulation

- 1 Heart pumps the oxygenated blood and transfers to entire body through arteries.
- 2 Blood vessel carry that oxygenated blood towards brain, and other parts

of the body.

3. Blood vessels also carry deoxygenated blood from all over the body and carries back to heart.
4. The de-oxygenated blood carried by the vessels when reaches to heart, it further sends it to lungs to make it oxygenated.
5. Heart and bloodvessels perform crucial role in carrying oxygenated blood to organs, in order to allow their smooth functioning.

Part B

Cyclone and describe its formation

Cyclone

Cyclones are also known as hurricanes and tornados. These are great masses of air that flow in spiral manner abruptly, carrying winds and rain along with them. Cyclone is general term for the phenomenon while hurricanes are the cyclones occurring in the Atlantic oceans and tornados occur in the North Eastern pacific ocean.

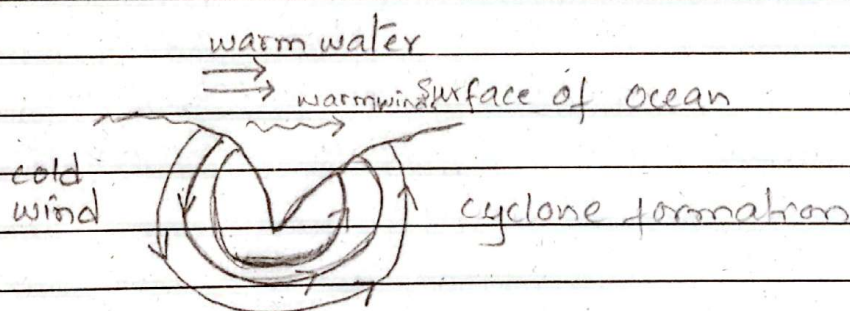
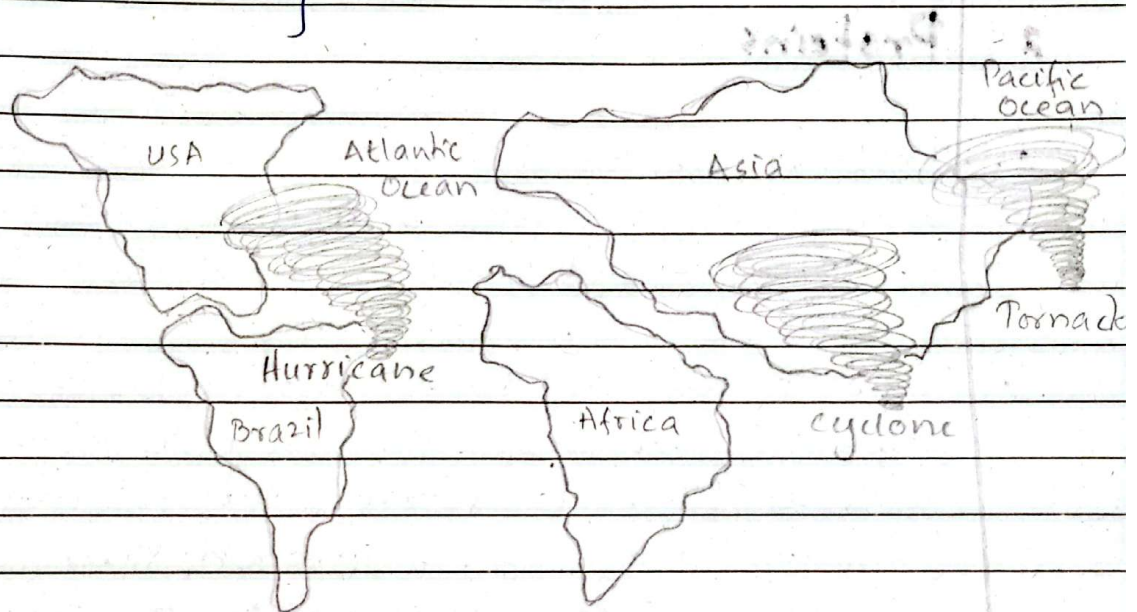
Formation of cyclones

1. Formed by warm ocean waters

Cyclones are usually formed by the warm ocean waters. They carry the energy of warm waters with low pressure inside them.

2. Formed by changing wind patterns

Cyclones can also be formed by the changing wind patterns and altitudes that carry intense moisture and humidity with them.



Part C**Enlist the functions of****1 Carbohydrate**

- a. Carbohydrates provide quick source of energy by providing glucose to body
- b. They can be stored in liver for longer period in order to provide energy when human body is starving. For instance, in fasting or ^{strict} diet conditions.

2 Proteins

- a. Proteins are building blocks of amino acids that are also source of energy for human and animal body cells.
- b. Proteins are building components of essential human organs and structures such as hair. In hairs, the keratin is found which is a protein. They can also be seen in formation of skin cells and blood clotting factors such as Thrombin and Prothrombin. Additionally, proteins may form the upper layer on wound after an injury.

3 Fats

- a. Fats are unsaturated fatty acids that play significant role in human body. Fats form cholesterol that is needed to lubricate arteries. Fats prevent arteries and veins from blocking.
- b. Fats are essential to protect a human body from extreme cold weather. It helps accumulate a insulating layer under human skin that prevents a person from extreme weather.

4 Calcium

- a. Calcium is special component in human body that provides bone strength to human skeleton. Humans are entirely composed of bones that require calcium so that they donot become porous or fragile.
- b. Calcium is good for teeth health. It prevents teeths from cavities.

5 Iron

- a. Iron is crucial component of a human body, as it helps in formation of blood.

16. Iron is also source of promoting mental health and clarity by forming enough blood that reaches actively to brain.

Part d

How remote sensing can be employed for environmental purposes

Remote Sensing

Remote sensing is the deployment of certain sensing objects such as satellite to have a clear location, reach, identification and image of far reached objects.

Use for employing for environmental purposes

1. Use in forest, to track deforestation

Remote sensing can be used to track forest health. It can be used to synthesize if there are any deforestation activities being held. It can also be used to detect the wildfires in forest by the help of image capturing facility of remote sensing.

2. Used near rivers, seas for flood detection

Remote sensing can be used near river banks or sea shores in order to have warnings before any tsunamis, floods or hurricanes near coastal areas. It can help evacuate places before any natural hazards.

3. Can be used to predict mountain hazards such as avalanches

Remote sensing can also help in detecting the ice storms and overhanging ice caps on mountains that may cause avalanches and bury whole towns. It is beneficial in detecting slab avalanches that may cause huge destructions for communities.

4. Can be used to evacuate places before volcano eruptions and detecting health hazards such as intense air pollutions

Remote sensing picture capturing ability and detecting movements in places that are unreachable is perfect for tracking volcano eruption. It can also be used to evacuate places which may get overly polluted because of volcano

ashes and debris accumulation.

Question no 5

Part b Define biofuels, explain the production of biodiesel and biogas

Biofuels

Biofuels are renewable energy resources. It is formation of fuels with organic matter such as plants, plants debris, algae, blooms and agricultural waste.

Production of biodiesel

Biodiesel is formed by first generation biofuels. The first generation biofuels are the agricultural edible foods such as sugarcane and soybeans. The biodiesels are product of ethanol and methyl ethyl bromide that is extracted from edible agricultural products such as sugarcane syrup.

Production of biogas

Biogas is made from third generation biofuels. The third generation biofuels are usually the algal and fungal fumes, debris, plants and

animal waste. Biogas is product of decayed organic matter that is fermented or decayed by microorganisms such as bacteria. These bacteria produce Nitrogen components such as Nitrous oxide and Ammonia, that is further use to generate gas, known as biogas.

Part c

Digestive system Role of stomach and small intestine

Digestive system

Digestive system is a complex system that involves process such as eating, breaking food into simpler substances, providing energy to body and accumulation essential nutrients in blood. It involves the process of food digestion from ingestion of food to excretion of waste substances out of food.

Role of stomach

1. Stomach plays significant role in digestion of food. It releases essential enzymes that help food to break down into simpler components.

2. Stomach stores the food until the food is broken down into simpler units such as proteins, carbohydrates and fats that are then carried to intestines.
3. Stomach also balances the pH of food by mixing Hydrogen Chloride from its lining that further allow simpler breakdown of food substances.

Role of small intestine

1. Small intestine is essential part in human digestion, as it carries the essential nutrients of food to blood.
2. Once food is broken down into fats, proteins and carbohydrates, the small intestine carries these particles through active diffusion.
3. Small intestine has villi and microvilli on its lining. These villi uptake the essential nutrients from food to smaller blood vessels through diffusion process.

Part d

Define plastics, properties, applications and environmental risks

Date: _____

Plastics

Plastics are synthetic materials that can be easily deformed or mold when heated. The word plastics can be seen from Latin language which uses word Plasticus which means "able to be molded" and the Greek word Plastikos that means moldable object.

Properties

1. Plastics are easily deformed upon heating them.
2. They are non conductor of electricity
3. Not brittle objects.
4. Donot have high melting point.
5. Easily breakable.

Applications

1. They are used to make crockery such as plastic bottles, plates and spoons.
2. used to make shopping bags.
3. Used in making furniture such as chairs, beds, cupboards and tables.

4. Plastics are used to create toys for children.
5. Plastics like Nylon are used to make wigs, cloths and hair brushes.

Environmental risks

1. Burning of plastics can cause severe respiratory issues because of their small black particles that become suspended in air.
2. Plastics are not dissolvable hence cause severe issues for marine life where plastics thrown in water pollute the oceans and rivers.
3. Plastics cause land pollution by not dissolving into the soil.
4. The plastic used in crockery causes health issues such as hormonal imbalance due to its insalvageable nature.

(Section-B)

Question no 8

Part A

According to the given conditions

1. A is to the right of B

$$= B \quad A$$

Date: _____

2. E is to the left of C and right of A
= A E C

3. B is to the right of D
= D B

By combining all condition row becomes

= D B A E C

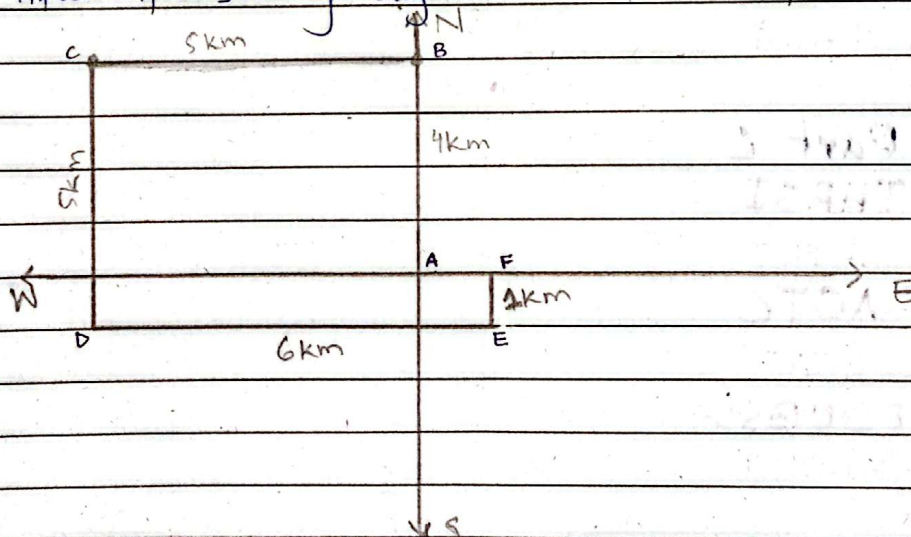
which house is in Middle.

A is the house in middle.

Part B

According to given conditions

1. start running from point toward North till 4km
2. Turn left and run 5km
3. Again turn left and run 5km
4. Then again turn left and run 6km
5. After finishing again run 1km left.



How many km are you from place you started

The distance from the place started and reached is = 1km

After taking the second turn in which direction will you be running? ~~while~~

After taking the second turn the person will be running southwards

In which direction will you be running while finishing

While finishing the person will be running north

From the finishing point if you have to reach the point from where you started, in which direction will you have to run?

A person will have to run westwards in order to reach the point where he/she started

Part C

(a) THRSI

SHIRT

(b) AOTC

COAT

(c) EOUBSL

BLOUSE

Date: _____

KTRIS
SKIRT

RETAEINS
SWEATER

find odd one out

BLOUSE is odd man out in following.

Part D

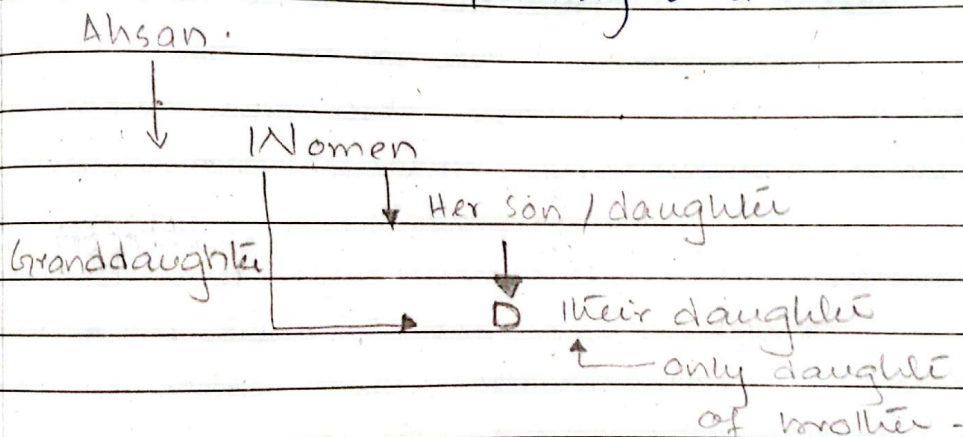
There are 26 triangles in the diagram
= Twenty six triangles

Question no 6

Part A

given conditions

Ahsan said " Her granddaughter is
the only daughter of
my brother". while
pointing to a woman



The woman is mother of Ahsan