

Short Question Answer

Q1. What are enzymes? Name any one enzyme of our digestive system and write its function.

Answer. Enzymes are biological catalysts.

Catalysts are proteins that increase the rate of chemical reactions

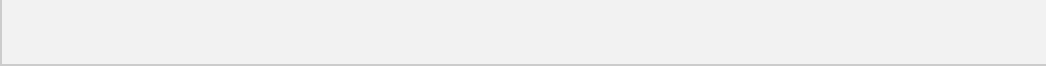
without being used up. For example: Amylase catalyses the breakdown of starch into sugars in the mouth and small intestine

Q2.(i) Write the balanced chemical equation for the process of photosynthesis,

(ii) When do the desert plants take up carbon dioxide and perform photosynthesis ?

Answer.

(i) Photosynthesis can be represented using a chemical equation. The overall balanced equation is



(ii) Desert plants open up their stomata during night and take in CO₂. Stomata remains close during the day time to prevent the loss of water by i transpiration. They store the CO₂ in their cells until the sun comes out and they can carry on with photosynthesis during the day time.

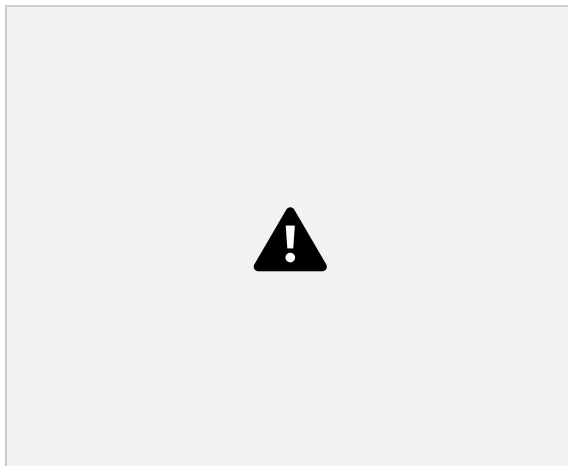
Q3. In single celled organisms diffusion is sufficient to meet all their requirements of food, exchange of gases or removal of wastes but it is not in case of multicellular organisms. Explain the reason for this difference.

Answer. Unicellular organisms can absorb sufficient oxygen because of its complete contact with the atmosphere, but in multicellular organisms the rate of absorption

and diffusion becomes very less because all cells are not in direct contact with the atmosphere. Multicellular organisms require greater amount of oxygen to sustain life processes which cannot be fulfilled by the process of diffusion.

Q4. Draw a diagram of human excretory system and label kidneys, ureters on it.

Answer.



Q5. Name the acid presents in the following:

(i) Tomato (ii) Vinegar (iii) Tamarind

Answer.

(i) Oxalic acid (ii) citric acid (iii) Tartaric acid.

Q6.State the role of the following in human digestive system :

(i) Digestive enzymes (ii) Hydrochloric acid (iii) Villi

Answer.

(i) Digestive enzymes – Foods need to be broken into their small or simpler molecules so that they can be absorbed into the bloodstream. However, the physical breakdown of food is not enough. Enzymes are hence needed for the chemical breakdown of food and speeding up the digestive process. The products of digestion can hence be small

enough to be absorbed.

(ii) Hydrochloric acid – Hydrochloric acid helps to kill the germs which might have entered into the system through food. It creates an acidic medium for the pepsin to act on food to break down proteins.

(iii) Villi – Villi are finger-like projections in the small intestine. They help to increase the surface area for absorption of the digested food. Villi are richly supplied with blood vessels which help to absorb digested food into the blood stream.

Q7.(a) Explain how does the exchange of gases occur in plants across the surface of stems, roots and leaves.

Answer.

In plants there are tiny pores called stomata on leaves and lenticels in stem which facilitate the

exchange of gases. Carbon dioxide is taken in and oxygen given out {during photosynthesis} and vice versa during respiration.

Q8. How are water and minerals transported in plants ?

Answer

Water and minerals are transported within the plant by the Xylem vessels (mainly in an upward direction); these are part of the vascular system which also includes Phloem vessels.

Phloem transports the products of photosynthesis within the plant, to all parts like the stem, roots, fruits etc. in all directions.

Q9 Mention the raw materials required for photosynthesis.

Answer.

The following raw materials are required for

photosynthesis:

(i) Carbon Dioxide: Plants get CO₂ from atmosphere through stomata.

(ii) Water: Plants absorb water from soil through roots and transport to leaves.

(iii) Sunlight: Sunlight, which is absorbed by the chlorophyll and other green parts of the plant.

Q10. Why do herbivores have longer, small intestine than carnivores ?

Answer.

Digestion of cellulose takes a longer time.

Hence, herbivores eating grass need a longer small intestine to allow complete digestion of cellulose. Carnivorous animals cannot digest cellulose due to the absence of enzyme CELLULASE, hence they have a shorter intestine.

Q11. Write correct sequence of four steps of

method for the preparation of temporary mount of a stained leaf peel.

Answer.

Take a healthy leaf from the potted plant.

Remove a part of the peel from the lower surface of the leaf. You can do this by folding the leaf over and gently pulling the peel apart using forceps. Keeps the peel in a watch glass containing water.

Put a few drops of safranin stain in a watch glass.

After 2-3 minutes take out the peel and place it on a clean glass slide.

Put a drop of glycerin over the peel and place a clean covers lip gently over it with the help of a needle.

Remove the excess stain and glycerin with the

help of blotting paper.

Observe the slide under magnifications of the compound microscope.

Q12. In mammals and birds why is it necessary to separate oxygenated and de-oxygenated blood ?

Answer.

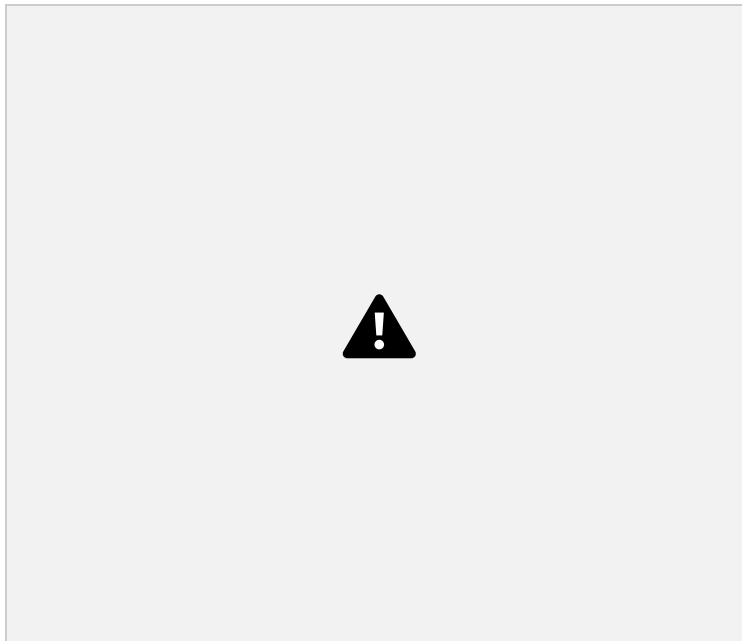
Mammals and birds are warm blooded animals. This means they can control their body temperature and do not have to depend on environment for their body temperature regulation. Because of this birds and mammals require optimum oxidization of glucose which would be possible with good supply of oxygen. So it is required to have separate oxygenated and de-oxygenated blood to supply the required amount of oxygen.

Q13.(a) Name the site of exchange of material between the blood and surrounding cells. (b) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide in human body.

Answer.

(a) Capillaries

(b)



Q14. What would be the consequences of deficiency of hemoglobin in your body?

Answer.

The deficiency of hemoglobin in our body is called anemia. In anemia, the blood is unable to carry the sufficient amount of oxygen required by the body. So, respiration would be less and less energy will be available to the body. The hemoglobin deficient person will feel weak, pale, lethargic and will be unable to perform heavy physical work.

Q15. List three characteristics of lungs which make it an efficient respiratory surface.

Answer.

These features which particularly make our lungs efficient for gas exchange.

1.Thin: the air sac walls are very thin so that gases can quickly diffuse through them. Oxygen is absorbed in to the blood and carbon dioxide is given out in to the lungs to be exhaled out.

2.Moist: the air sacs are moist with mucus so that gases can dissolve before diffusing.

3.Large surface area: the surface area for gases to diffuse through in human lungs is roughly the same as a tennis court. The alveoli help to increase the surface area for absorption of oxygen.

4.Good blood supply: the air sacs or the alveoli have a large capillary network so that large volumes of gases can be exchanged. More the flow of blood more exchange

Q16 List in tabular form three differences

between arteries and veins.

Answer.



Q17. List the three kinds of blood vessels of human circulatory system and write their functions in tabular form.

Answer.

Three types of blood vessels in human circulatory system are: Arteries, Veins and Capillaries.

Their functions are tabulated below:



Q18.What are the final products after digestion of carbohydrates and proteins?

Answer.

The final product produced after digestion of carbohydrates is glucose and of proteins is amino acids.

Q19.What is saliva? State its role in the digestion of food.

Answer.

Saliva is a watery fluid secreted by the salivary

glands in the mouth. The digestive functions of saliva include moistening food, and helping to create a food bolus, so it can be swallowed easily. Saliva contains the enzyme amylase that breaks some starches down into maltose and dextrin.

Q20.Explain the process of nutrition in Amoeba.

Answer.

Amoeba is an important protozoa found in fresh water. It feeds on microscopic plants and animals present in water. The mode of nutrition in amoeba is Holozoic. And the process of obtaining food by amoeba is called phagocytosis. The different processes involved in the nutrition of amoeba are: