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Question. 1 Which of the following statements about the autotrophs is incorrect?

- (a) They synthesize carbohydrates from carbon dioxide and water in the presence of sunlight and chlorophyll
- (b) They store carbohydrates in the form of starch
- (c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight
- (d) They constitute the first trophic level in food chains

Answer. (c)

Explanation:

Autotrophs obtain the required carbon and energy requirements from carbon dioxide and Sunlight. They combine carbon dioxide and water to form carbohydrates. The main photosynthetic pigment is chlorophyll, which helps to trap the Sunlight to carry out the light reaction of photosynthesis to synthesise carbohydrates.

Since autotrophs are the only organisms that can fix the atmospheric carbon dioxide into organic compounds, these organisms occupy first trophic level in food chain and serve as a source of food and energy for organisms of higher trophic levels.

Question. 2 In which of the following groups of organisms, food material is broken down outside the body and absorbed?

- (a) Mushroom, green plants, *Amoeba*
- (b) Yeast, mushroom, bread mould
- (c) *Paramecium*, *Amoeba*, *Cuscuta*
- (d) *Cuscuta*, lice, tapeworm

Answer. (b)

Explanation: Yeast, mushroom and bread mould are saprophytes which derive their nutrition from dead organisms. For the purpose, these organisms secrete digestive enzymes on their substratum to break down the complex food material into the simpler ones. These digested food materials are then absorbed by them.

Question. 3 Select the correct statement

- (a) Heterotrophs do not synthesize their own food
- (b) Heterotrophs utilize solar energy for photosynthesis
- (c) Heterotrophs synthesize their own food
- (d) Heterotrophs are capable of converting carbon dioxide and water carbohydrates

Answer. (a)

Explanation: Heterotrophs are the organisms that cannot synthesize their own food and depend on available organic/inorganic compounds to fulfil their energy requirements.
Examples: All animals.

Question. 4 Which is the correct sequence of parts in human alimentary canal?

- (a) Mouth → Stomach → Small intestine → Oesophagus → Large intestine
- (b) Mouth → Oesophagus → Stomach → Large intestine → Small intestine
- (c) Mouth → Stomach → Oesophagus → Small intestine → Large intestine
- (d) Mouth → Oesophagus → Stomach → Small intestine → Large intestine

Answer. (d)

Explanation: Human alimentary canal consists of organs of digestion which are namely, in sequence, mouth, oesophagus, stomach, small intestine, large intestine and anus.

Question. 5 If salivary amylase is lacking in the saliva, which of the following events in the mouth cavity will be affected?

- (a) Proteins breaking down into amino acids
- (b) Starch breaking down into sugars
- (c) Fats breaking down into fatty acids and glycerol
- (d) Absorption of vitamins

Answer. (b)

Explanation: Amylase is the enzyme which helps in primary digestion of starch only. Digestion of starch by salivary amylase into maltose starts in mouth. Oesophagus then pushes the food into stomach. It does not carry out digestion at all. Pancreatic amylase

also digests remaining starch into maltose sugars. Intestinal maltase carries out final chemical digestion of maltose into glucose molecules.

Question. 6 The inner lining of stomach is protected by one of the following from hydrochloric acid. Choose the correct one

- (a) Pepsin
- (b) Mucus
- (c) Salivary amylase
- (d) Bile

Answer. (b)

Explanation: The gastric glands of stomach produce gastric juice, which contains pepsinogen, HCl, and mucus. HCl impart highly acidic pH to stomach which help in the further digestion of food. The mucus in gastric juice helps protect the stomach wall from corrosive effect of hydrochloric acid.

Question. 7 Which part of alimentary canal receives bile from the liver?

- (a) Stomach
- (b) Small intestine
- (c) Large intestine
- (d) Oesophagus

Answer. (b)

Explanation: Bile is secreted by liver and is stored in gall bladder from where it enters the small intestine via common duct.

Question. 8 A few drops of iodine solution were added to rice water. The solution turned blue-black in colour. This indicates that rice water contains

- (a) Complex proteins
- (b) Simple proteins
- (c) Fats
- (d) Starch

Answer. (d)

Explanation: Presence of starch in a solution turns added iodine drops in blue black color. Hence, the blue-black colour of rice water confirms presence of starch.

Question. 9 In which part of the alimentary canal food is finally digested?

- (a) Stomach
- (b) Mouth cavity
- (c) Large intestine
- (d) Small intestine

Answer. (d)

Explanation: Digestion of food starts in mouth by salivary amylase. From here it enters into the stomach via oesophagus. Gastric juice of stomach digests the protein part of food. Pancreatic amylase, trypsin and lipase as well as intestinal peptidases and maltase carry out the final chemical digestion of food in small intestine. The simpler substances formed by chemical digestion are then absorbed by small intestinal villi.

Question. 10 Choose the function of the pancreatic juice from the following

- (a) Trypsin digests proteins and lipase carbohydrates
- (b) Trypsin digests emulsified fats and lipase proteins
- (c) Trypsin and lipase digest fats
- (d) Trypsin digests proteins and lipase digests emulsified fats droplets

Answer. (d)

Explanation: Pancreatic juice contains sodium bicarbonate and digestive enzymes amylase, trypsin, lipase and nucleases. Pancreatic amylase carries out digestion of starch, trypsin digests protein, and lipase breaks down fat droplets already emulsified by bile salts.