



Short answer type questions:

Q1. Define carbohydrates.

Ans: Carbohydrates are compounds which contain carbon, hydrogen and oxygen. Oxygen and hydrogen are present in the same proportion as in water. They are the main sources of energy for human body. Carbohydrates are mainly distributed among plant food; except glycogen, lactose and ribose which are present in muscles or in liver, human milk and animal cells respectively.

Q2. What are the major types of carbohydrates found in foods?

Ans: The main types of the carbohydrates are as follows

- a. Monosaccharides — (Single sugar unit)
- b. Disaccharide — (Two sugar units)
- c. Polysaccharide — (Many molecules of simple sugar units)

Q.3. Write short note on the food glycogen?

Ans: Glycogen called as “animal starch” is similar in structure to the amylopectin of starch but contains many more branched chains of glucose. It is rapidly synthesized from glucose in the liver and muscle.

There are two types of glucose chains present:

- (1) Amylose consisting of long straight chains of glucose,
- (2) Amylopectin consists of short branched chain of glucose unit.

Q.4. Write short note on protein and enlist their main sources?



Ans: The word protein is derived from the Greek word “proteios” which means principal components of all living cells and are important in practically all aspects of cell structure and functions. Proteins contain carbon, hydrogen, nitrogen and sulphur and some also contain phosphorus. Proteins are large molecules formed from the combination of large number of simpler substances known as amino acids. The various important sources of protein are as under.

Plant sources: Cereal Grains, pulses, nuts, Legumes, etc.

Animal sources: Meat, fish, poultry eggs, milk and milk products.

Q.5. What are derived proteins?

Ans: The proteins which result from the decomposition of simple and conjugated proteins are called as derived proteins. This include rearrangement within the molecules without breaking the peptide bond such as that occurring with coagulation and also substances formed by hydrolysis of proteins of smaller fraction.

Q.6. Discuss about the fats present in the food.

Ans: Fats are the most concentrated source of energy and supplies 9 Kcals of energy per gram of fat. They provide the body's main reserve of energy and are essential for various functions. Like carbohydrates, fats are organic compounds composed of carbon, hydrogen and oxygen, but they differ from carbohydrates in that they contain much less oxygen and much greater proportions of carbon. Fat has one molecule of organic ester of glycerol and three molecules of fatty acids. Fats are insoluble in water and soluble in organic solvents like ether, benzene or chloroform. Their cooking property depends on the kind of fatty acid present in them. Lipids are heterogeneous group of compounds with same properties. Fat is the common household name given



to lipids.

Q.7. What are vitamins?

Ans: Vitamins are defined as organic compounds which are necessary for good health and vitality. Vitamins are required in minute quantities and their deficiency results in structural and functional disorders of various organs. Vitamins are mainly of two types fat soluble vitamins (A, D, E and K) and water soluble (B and C) vitamins.

Q.8. What are fat soluble vitamins and what are their important sources?

Ans: Fat soluble vitamins are generally associated with fatty foods such as butter, ghee, cream, oils and fats of meat and fish. Fat soluble vitamins are stable to heat and are less likely to be lost during cooking and processing of foods. They are absorbed from the Intestine along with fats and lipids. The various foods which are rich sources of fat soluble vitamins include liver, fish liver oil, egg yolk, butter, cheese, whole milk, fish, spinach, amaranth, fenugreek, carrot, papaya, pumpkin and mango, etc.

Q.9. Write a short note on vitamin A and give its importance?

Ans: Vitamin A is found in the form of retinol and carotene. Vitamin A in its pure form is a pale yellow substance soluble in fat. It is unsaturated alcohol which is stored in the body as esters. Vitamin A is found in milk, meat, fish, etc. The vitamin is found in highest quantity in the liver. Plants do not contain vitamin A, but contain its precursor, the carotenoids which are converted to vitamin A after absorption by the ingesting animal. Carotenoids are orange and yellow pigments of fruits and vegetables. Vitamin A is expressed in terms of international units (IU).

1 I U = 0.3 µgms of retinol



1 I U = 0.6 μ gms of carotene

Q.10. Briefly describe vitamin C and its main sources?

Ans: Vitamin C is a water soluble vitamin. It is the most unstable of all vitamins, being rapidly destroyed by high temperature, oxidation, drying and storage. Ascorbic acid is a white crystalline substance readily soluble in water. The various sources of vitamin C are as follows.

Fruits – All fresh fruits contain vitamin C. Amla, the Indian gooseberry (Nellikayi) is one of the richest sources. Guava is another cheap source of vitamin C. Vegetables especially green leafy vegetables are rich in vitamin C. Roots and tubers are poor sources of vitamin C. Sprouts also contain small amounts of vitamin C.

Animal food – Meat and milk contain very small amounts of vitamin C.