

18/MHS06/052

MLS

BCH 204

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Answers

1a. What are coenzymes

Coenzyme: A substance that enhances the action of an enzyme. (An enzyme is a protein that functions as a catalyst to mediate and speed a chemical reaction).

Coenzymes are small molecules. They cannot by themselves catalyze a reaction but they can help enzymes to do so. In technical terms, coenzymes are organic nonprotein molecules that bind with the protein molecule (apoenzyme) to form the active enzyme (holoenzyme).

b. Differentiate between fat and water soluble vitamins

Fat soluble vitamins

Water soluble vitamins

These are soluble in fats

These are soluble in water

They are generally stored in

They are not stored in the
liver

c. Describe niacin in relation to its coenzymic function

Niacin is a coenzyme, like thiamine and riboflavin, that is responsible for energy release from carbohydrates. A niacin deficiency can lead to pellagra, a disabling disease with symptoms that may be characterized by four "Ds": depression, diarrhea, delirium and dementia.

Niacin is found in fortified breads and cereals. Protein foods, such as eggs, fish, meat, dairy milk and poultry, are naturally rich in niacin. They are also plentiful in the amino acid tryptophan, which can be synthesized into niacin by the liver. Chicken breast, ground beef, halibut, tuna and turkey are particularly good sources of tryptophan. In the vegetable kingdom, asparagus, baked potatoes and cantaloupe have significant amounts of tryptophan.

body except vitamin B12

They do not act as coenzymes

They act as coenzymes

They are not excreted in urine

They have a threshold for
urinary excretion

Niacin has been used to lower LDL cholesterol and raise HDL cholesterol when administered as a drug under medical guidance. In heavy doses, niacin has been known to cause a "niacin flush" due to the capillaries increasing in size. This condition can lead to fatigue and even liver damage