

NAME: ELAWEREMI .G. OYINTARELAYEFA

MATRIC NUMBER: 18/MHS07/016

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: PHARMACOLOGY

COURSE CODE: BCH 204

COURSE TITLE: MEDICAL BIOTECHNOLOGY II

DATE: 25TH MAY 2020 – 31ST MAY 2020

ASSIGNMENT: WHAT ARE COENZYMES

DIFFERENTIATE BETWEEN FAT AND WATER SOLUBLE VITAMINS

DESCRIBE NIACIN IN RELATION TO ITS COENZYMIC FUNCTION

WHAT ARE COENZYMES

COENZYMES: coenzymes are cofactors that are organic nature. Cofactors are non-protein compounds that are required for the optimum activity of some enzymes. Coenzymes are cofactors that are loosely bound to enzymes.

DIFFERENTIATE BETWEEN FAT AND WATER SOLUBLE VITAMINS

FAT SOLUBLE VITAMINS	WATER SOLUBLE VITAMINS
Fat soluble vitamins function as hormones, antioxidants and coenzymes.	Water soluble vitamins function as precursors for coenzymes and antioxidant.
Fat soluble vitamins are toxic.	Water soluble vitamins are non toxic.
Fat soluble vitamins are stored extensively.	Water soluble vitamins are not stored extensively except vitamin B12 so they are required frequently.
Fat soluble vitamins are vitamins that are soluble in fat.	Water soluble vitamins are vitamins that are soluble in water.
Fat soluble vitamins require carrier protein for distribution.	Water soluble vitamins don't require carrier protein for distribution to occur.
Fat soluble vitamins are stored in the liver.	Water soluble vitamins can not be stored.

Fat soluble vitamins cannot be excreted.	Water soluble vitamins can be excreted.
The absorption of fat soluble vitamins require bile salt.	The absorption of water soluble vitamin is simple.
Deficiency occurs when stores are depleted.	Deficiency occurs rapidly as there is no storage .
The treatment of deficiency requires simple large dozes.	The treatment of deficiency requires dietary supply.

DESCRIBE NIACIN IN RELATION TO ITS COEZYME FUNTION

Niacin is a precursor of coenzymes; nicotinamide adenine dinucleotide (NAD⁺) and nicotiamide adenine dinucleotide phosphate (NADp⁺). They are involved in various oxidation and reduction reactions which are catalysed by dehydrogenases in metabolism. These coenzymes are involved in many metabolic pathways of carbohydrate, protein and lipid. NAD⁺ linked with dehydrogenases catalyze oxidation-reduction reaction in oxidative pathways e.g citric acid cycle and glycolysis. NADp⁺ linked with dehydrogenases or reductases are often concerned in pathways of reductive synthesis e.g synthesis of cholesterol, fatty acid and pentose phosphate pathways.