

Date  
05.07.2020

Page no. :- 01

Dr. Rajesh Verma, Assistant professor  
and Head, U.G. Department  
of zoology, D.K. College Durgam  
(Buxar), Notes for B.Sc part  
3<sup>rd</sup>, paper V

Question :- Write Notes on Types of  
VITAMIN ?

Answer :- Vitamins :-

Vitamins are  
nutrients your body needs  
to develop and function  
properly. There are 13  
essential vitamins: A, D, E,  
and K, which are fat-  
soluble, and vitamins C  
and the B-complex  
group, which are water-  
soluble. Each vitamin has  
a distinct role in  
keeping you healthy.

A vitamin is an  
organic molecule (or related  
set of molecules) that is

Date  
05.07.2020

Page no. :- 02

an essential micronutrient which an organism ~~no~~ needs in small quantities for the proper functioning of its metabolism. Essential nutrients cannot be synthesized in the organism, either at all or not in sufficient quantities, and therefore must be obtained through the diet. Vitamin C can be synthesized by some species but not by others; it is not a vitamin in the first instance but is in the second. The term vitamin does not include the three other groups of essential nutrients: minerals, essential fatty acids, and essential amino acids. Most vitamins are not single molecules, but groups of related molecules called vitamers. For example, vitamin E consists of four tocopherols and four tocotrienols. Though some sources list fourteen: vitamin A (as all-trans-retinol, all-trans-retinyl esters, as well as

Date  
05.07.2020

Page no. 03

all - trans - beta - carotene and other provitamin A (carotenoids), vitamin B<sub>1</sub> (thiamine), vitamin B<sub>2</sub> (riboflavin), vitamin B<sub>3</sub> (niacin), vitamin B<sub>5</sub> (pantothenic acid), vitamin B<sub>6</sub> (pyridoxine), vitamin B<sub>7</sub> (biotin), vitamin B<sub>9</sub> (folic acid or folate), vitamin B<sub>12</sub> (cobalamin), vitamin C (ascorbic acid), vitamin D (calciferols), vitamin E (tocopherols and tocotrienols), and vitamin K (quinones).

### Classification :-

Vitamins are classified as either water soluble or fat soluble. In humans there are 13 vitamins: 4 fat-soluble (A, D, E, and K) and 9 water-soluble (8 B vitamins and C). Water-soluble vitamins dissolve easily in water and, in general, are readily excreted from the body, to the

Date  
05.07.2020

Page no. :- 04

degree the urinary output is a strong predictor of vitamin consumption. Because they are not as readily stored, more consistent intake is important. Fat soluble vitamins are absorbed through the intestinal tract with the help of lipids (fats). Vitamins A and D can accumulate in the body, which can result in dangerous hypervitaminosis. Fat-soluble vitamin deficiency due to malabsorption is of particular significance in cystic fibrosis.

### Anti-vitamins :-

Anti-vitamins are chemical compounds that inhibit the absorption or actions of vitamins. For example, avidin is a protein in raw egg whites that inhibits the absorption of biotin; it is a dacti-

Date  
05.07.2020

Page no. :- 05

- voted by cooking. Pyruithio  
- mine, a synthetic compound  
has a molecule structure  
similar to thiamine, vitamin  
B<sub>1</sub>, and inhibits the enzymes  
that use thiamine.

Naming :-

Nomenclature of reclassified  
vitamins :-

Previous name	chemical name	Reason for name change
Vitamin B <sub>4</sub>	Adenine	DNA metabolite synthesized in body
Vitamin B <sub>8</sub>	Adenylic acid	DNA metabolite synthesized in body
Vitamin B <sub>7</sub>	Carnitine	Synthesized in body
Vitamin F	Essential fatty acids	needed in large quantities

DATE  
05.07.2020

Page no.: - 06

Vitamin G	Riboflavin	Reclassified as vitamin B <sub>2</sub>
Vitamin H	Biotin	Reclassified as vitamin B <sub>7</sub>
Vitamin J	Catechol, Flavin	nonessential; flavin reclassified as vitamin B <sub>2</sub>
Vitamin L <sub>1</sub>	Anthranilic acid	Nonessential
Vitamin L <sub>2</sub>	Adoxylthiomethyl -pentose	RNA metabolite; synthesized in body
Vitamin M or B <sub>c</sub>	Folate	Reclassified as vitamin B <sub>9</sub>
Vitamin P	Flavonoids	Many compounds - not proven esse- -ntial Reclassified as
Vitamin PP	Niacin	Reclassified as vitamin B <sub>3</sub>