







IV. Compare between each pair of the following:

2 (1 def, 1 str) 2

1- Proteoglycans and Glycoproteins (definition and chemical structure of one example for each) (4 Marks)

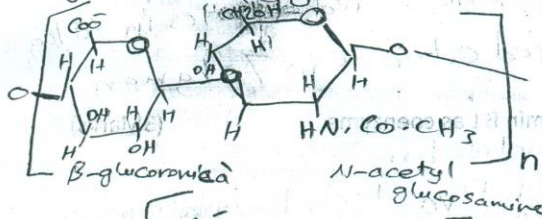
proteoglycans

glycoproteins

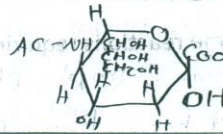
They are predominantly carbohydrate but also contain proteins

They are proteins containing branched or unbranched oligosaccharide chains.

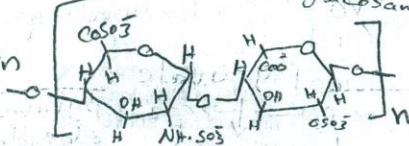
1- Hyaluronic acid



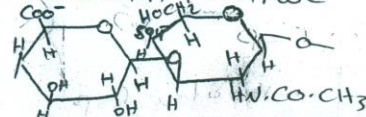
ex- Sialic acid (N-acetylneuraminic acid)



heparin



ex- Chondroitin 4-sulfate



2- Pellagra and Wernicke-Korsakoff syndrome (causes and symptoms) (3 Marks)

pellagra

Wernicke-Korsakoff syndrome

Causes: deficiency of niacin

Symptoms: three Ds

Diarrhea, dementia  
 dermatitis and if left untreated, death

Causes: thiamine deficiency (thiamine alcoholism)

due to dietary insufficiency or impaired intestinal absorption

Symptoms: apathy  
 loss of memory and arrhythmic  
 to-and-fro motion of eyeballs

V. Illustrate each of the following:

- 1- Body fuel stores (types, percentage and values) (2Marks)
- 1) Triglycerides - in the average 70kg man, 85% of the stored calories are in adipose tissue
  - 2) Glycogen - liver (0.2% of the stored calories in 70 kg man)  
 muscle (0.44% of the stored calories in 70 kg man)
  - 3) Protein - 14.5% of the stored calories in 70 kg man

2- Enzyme reactions requiring vitamin B1 as coenzyme (3Marks)

Vitamin B<sub>1</sub> (Thiamine pyrophosphate active form)

Degradation or formation of ketols by ketolase & oxidative decarboxylation of α-keto acids

3- Disaccharides (types, chemical structure of one example)

Maltose, sucrose, Lactose

glucose + glucose → Maltose structure

glucose + fructose → Sucrose structure

galactose + glucose → Lactose structure

Best Wishes

4

sucrose - hydrolyzed into mixture of glucose and fructose which is called invert sugar  
 evaporatory fructose into dextran