

Midterm Exam in Biochemistry-1

Student Name: \_\_\_\_\_

Roll No. \_\_\_\_\_

Student Marks: \_\_\_\_\_

10

(8x0.5= 4 Marks)

I. Mark the ONE correct answer:

(1) Oligomeric proteins:

- a. Are those proteins having two polypeptide chains
- b. Have four levels of structure
- c. Are stabilized only by hydrogen bonds
- d. All of the above

(2) Regarding valine, which of the following statements is CORRECT?

- a. It is a cyclic amino acid
- b. It resides mainly on the surface of globular proteins
- c. Its side chain is ionized at physiologic pH
- d. It is an essential amino acid

(3) The 3D structure of proteins is characterized by all of the following EXCEPT:

- a. It is stabilized by disulfide bonds between serine residues
- b. It constitutes domains of alpha helices or beta sheets
- c. Non polar residues associate in the interior
- d. Polar residues can form ionic bonds

(4) The peptide bond in proteins is rigid because:

- a. O & H are *trans* to each other
- b. O is partially negative
- c. It has a partial double bond character
- d. The six atoms of the peptide bond group are always planar

(5) Aspartame is preferred than saccharin as artificial sweetener because:

- a. Aspartame has no aftertaste
- b. Aspartame contributes very little energy than saccharin
- c. Sucrose is much sweeter than aspartame
- d. Saccharin is a polysaccharide

(6) Regarding the structure of starch which of the following statements is correct?

- a. It is composed of  $\beta$ -glucose monomers
- b. It is a non-branched polysaccharide
- c. It is digested by  $\alpha$ -amylase
- d. It is the chief constituent of the framework of plants

4

(7) GLUT-2 is a monosaccharide transporter that transports ..... from the intestinal mucosal cell into the portal circulation:

- a. Fructose
- b. Glucose
- c. Galactose
- d. All of the above

(8) The lung surfactant constitutes unusual form of:

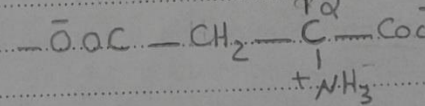
- a. Phosphatidylserine
- b. Phosphatidylethanolamine
- c. Phosphatidylcholine
- d. Phosphatidylinositol

II. Draw the chemical structure of each of the following biomolecules: (1.5 Marks)

Aspartate

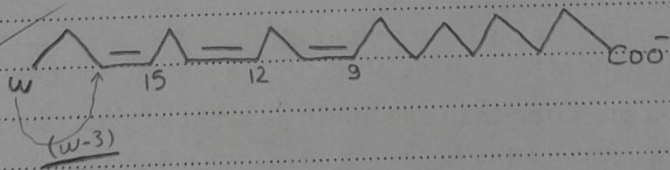
Aspartate:  
 amino acid with extra acidic acid group.

Linolenic acid

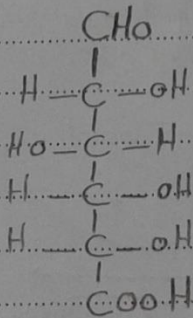


Glucuronic acid

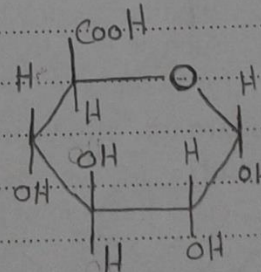
Linolenic acid: 18:3 $\Delta^{9,12,15}$  or 18:3 (w-3)



Glucuronic acid:



D-Glucuronic acid



$\alpha$ -D-Glucuronic acid (cyclic form).



