

Model Answer



Biomedical Engineering

Biochemistry
Course Code : BME 291
Level : 200
Allowed Time : 30 min
02/04/ 04/ 2015
Second Semester 2014 /2015
Mid-term exam A



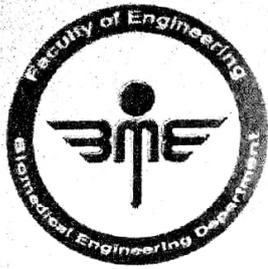
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Answer all the following questions:

1- Give the name(s) of each of the following:

(10 marks)

Question	Answer
1- A derived sugar in which one hydroxy group is replaced by an amino group.	Aminosugar
2- The part of starch structure which is linear and composed only of α -glucose units linked together by α 1,4- glycosidic linkage.	Amylose
3- The simplest phospholipid which does not have nitrogen base in its structure.	Phosphatidic acid
4- The complex aggregates of lipids and proteins that transport lipids in the body.	Lipoproteins
5- The development of unpleasant odor and taste after exposing fats and oils to light, oxygen, moisture or warm temperature.	Rancidity
6- The simplest amino acid which has 2 hydrogen atoms on the α carbon.	Glycine
7- The only pure ketogenic amino acid.	Leucine
8- The amino acid which disrupts the α -helix because it is not geometrically compatible with the right-handed spiral shape.	Proline
9- The overall three-dimensional shape of an entire protein molecule.	Tertiary protein structure
10- A disaccharide composed of 2 glucose units.	Maltose



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2- Complete the following sentences:

(10 marks)

- 1- Depending on the number of carbon atoms, fructose is an example of **hexose** which enters in the formation of disaccharide sugar known as **sucrose**
- 2- LDL is known as **bad cholesterol** while HDL is known as **good cholesterol**
- 3- An example of saturated fatty acid with 4 carbon atoms is **butyric acid** while **palmitic acid** is saturated fatty acid composed of 16 carbon atoms.
- 4- Arachidonic acid contains **4** double bond and can be converted into margarine by a process known as **hydrogenation** which has disadvantages such as **loss of fat soluble vitamins or essential fatty acids.**
- 5- Aldonic acid is produced after oxidizing **the aldehydic group** while uronic acid produced after oxidizing **the last hydroxy group.**
- 6- Depending on the polarity of the side chain, aspartic acid is considered **charged polar** while valine is considered **nonpolar.**
- 7- Glutathione is an example of active oligopeptide which functions as **antioxidant.**
- 8- Denaturation of proteins does not affect **peptide** bonds which is broken in a process known as **hydrolysis.**
- 9- Examples of secondary protein structures are **α helix and β -pleated sheets or triple helical structure**
- 10 - Lipids are composed of **fatty acid** and **fatty alcohol** linked together by ester linkage.

With my best wishes

Dr. Mohamed El-Mesery