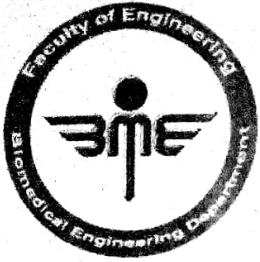


# Model Answer



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



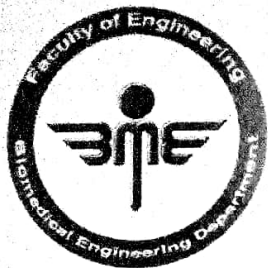
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**Answer all the following questions:**

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



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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  $\alpha$  helix and  $\beta$ -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*