

Course No: PHRM 2315
Course Title: Biochemistry-I
Date: 27/11/2017
No. of Questions: (5)
Time: 1hours
Using Calculator (no)

University of Palestine



First Mid. Exam
2017/2018
Total Grade:

Instructor Name: Dr. Iyad ALQOUQA
Student No.: _____
Student Name: _____
College Name: _____
Dep. / Specialist: _____
Using Dictionary (No)

Question One:

7 Marks

Put the sign (✓) against the right sentences and the sign (✗) against the wrong sentences and correct the wrong sentence whenever encountered.

- () Cellulose have glucose residues joined together by β -1,4 glucosidic linkage while amylose joined by α -1,4 glucosidic bond.
- () Peptidoglycan is a heteropolymer of alternating (α 1→4)-linked N-acetylglucosamine and Nacetylmuramic acid residues.
- () The glycosidic bond of a repeating unit of hyaluronan, a glycosaminoglycan, is 4)GlcA (α 1→3) GlcNAc (β 1→4).
- () Penicillin and its derivatives exert bactericidal effect through **inhibition of protein synthesis.**
- () Agarose is a **homopolysaccharide** found in the cell walls of some seaweed.
- () Starch exhibit **less extensive** branching than glycogen.
- () The cause of Alzheimer's, Parkinson's, Huntington's, and Mad Cow Disease is a result of **improper protein folding.**

Question Two:

7 Marks

Choose the correct answer and encircle it.

1. When two carbohydrates are epimers:

- A. one is a pyranose, the other a furanose.
- B. one is an aldose, the other a ketose.
- C. they differ only in the configuration around one carbon atom.
- D. they rotate plane-polarized light in the same direction.

2. In glycoproteins, the carbohydrate moiety is always attached through the amino acid residues:

- A. asparagine, serine, or threonine.
- B. glycine, alanine, or aspartate.
- C. glutamine or arginine.
- D. tryptophan, aspartate, or cysteine.

3. The biochemical property of lectins that is the basis for most of their biological effects is their ability to bind to:

- A. amphipathic molecules.
- B. specific lipids.
- C. specific oligosaccharides
- D. specific peptides.

4. Which of the following does not contain a glucosamine?

- A. Glypicans.
- B. Chitin.
- C. Amylopectin.
- D. Chondrotin.

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5. Non-reducing disaccharides include

- A. sucrose
- B. trehalose
- C. both A and B
- D. maltose

6. A keto pentose will have _____ stereoisomers

- A. 4
- B. 6
- C. 8
- D. 10

7. The only carbohydrate which is not having a chiral carbon atom is

- A. Erythrose
- B. Glyceraldehyde
- C. Dihydroxyacetone
- D. Erythrulose

8. Which of the following is an epimeric pair?

- A. D-Glucose and D-Galctose
- B. D-Glucose and L-Glactose
- C. D-Glucose and D-mannose
- D. Both A and C

9. Which of the following contains an ether-linked alkyl group?

- A. Gangliosides
- B. Phosphatidyl serine
- C. Platelet-activating factor
- D. Sphingomyelin

10. Which of the following best describes the cholesterol molecule?

- A. Amphipathic
- B. Nonpolar, charged
- C. Nonpolar, uncharged
- D. Polar, charged or uncharged

11. Which of the following describes the overall three-dimensional folding of a polypeptide?

- A. Primary structure
- B. Secondary structure
- C. Tertiary structure
- D. Quaternary structure

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12. Hemoglobin glycation is a process where _____ is non-enzymatically attached to hemoglobin.

- A. glycerol
- B. glucose
- C. galactose
- D. D ribose

13. Hydrolysis of glycoside bond involves

- A. breakdown of glycosidic bonds
- B. formation of glycosidic bonds
- C. formation of hydrogen bond
- D. formation of ionic bond

14. Which of the following molecules or substances contain, or are derived from, fatty acids?

- A. Beeswax
- B. Sphingolipids
- C. Triacylglycerols
- D. All of the above contain or are derived from fatty acids.

Question Three:

4 Marks

1. Briefly describe the five major groupings of amino acids

2. Tripeptides in a certain protein designated as A, B, C, D and E.

A	B	C	D	E
Tyr-Lys-Met	Gly-Pro-Arg	Asp-Trp-Tyr	Asp-His-Glu	Leu-Val-Phe

Which one of the above tripeptides?

- _____ (a) is the most negatively charged at pH7
- _____ (b) contain the largest number of nonpolar R groups?
- _____ (c) contain sulfur
- _____ (d) will have the greatest light absorbance at 280 nm?

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Question Four:**7 Marks**

1. Describe the common structural features and the differences for each pair:

(a) cellulose and glycogen; (b) D-glucose and D-fructose; (c) maltose and sucrose (d) cellulose and dextran

2. Cellulose could provide a widely available and cheap form of glucose, but why cannot humans digest it?

3. Write briefly on the followings:

Chitin

Glycogen

Starch

Peptidoglycan

Hyaluronate

Proteoglycan

Lectin

Mutarotaion

Question Five:**5 Marks**

1. What is the effect of a double bond on fatty acid structure?

2. Describe the factors affecting solubility and melting point of fatty acids.

3. Describe the differences between the glycosphingolipids corresponding to the A, B and O human blood group antigens.

End of Questions
Good Luck