University of Sadat City	Academic Year:	2018-2019	Course Code:	B_1 - 3	Percentage	60%
			Academic Program:	Diploma 1st year	N. of Exam Paper	3
	Level:	1st term	Department:	Molecular biology	Date:	Sunday 6 / 1/ 2018
	Course Name:	Behavior and analysis of enzyme system	Total score:	60 degrees	Time allowed:	3h

Instructions of Exam:

Answer the obligatory questions.

1. Use the blue pen and pencil in answer sheet
2. Allow one sheet answer for every student
3. Is not allowed to borrow the tools (pen, pencils, drawing tools, calculator …etc)
4. Is not allowed to use the cell phone or any of its application during the time of exam

The questions are in three pages
Directions: All Questions are to be answered

I. Fill the gaps with a suitable words **Total score (20 Marks; 2 Mark for each)**

1. Enzymes may be simple or compound proteins except …….. in case of compound proteins, the protein component is termed …….... and the prosthetic group is termed ……..... the combination produces a functional ……
2. Theories proposed to explain the mechanism of enzyme action are ……..…. and …….
3. Enzymes requiring the presence of a certain metal ion for their activity are called ……..…… Example…… in carbonic anhydrase, ……..… in catalase and peroxidase, …….…. In lipase.
4. Specificity of enzymes could be ……, ……, ……., or ……..……
5. Biological catalysts are physiologically important because they …..…… the rate of reactions and ……. The energy of the transition state.
6. The possible mechanisms of catalysis are ……in number, which are……., ……., …… & ……..
7. Adenosyl and methyl cobalamine are ….. which serve as coenzyme in ……..… and ……..…
8. The most remarkable and the most significant property of enzymes is their high degree of ……..…. for their ……
9. Enzyme's active site structure is the part of enzyme's structure where ……., ……..& ……. (If any) come together.
10. Enzymes are grouped into ……..… classes which are ……. , ….. , ……., ……., ……..… and ……..…

II. For each question, choose the ONE BEST answer **Total score (20 Marks; 2 Mark for each)**

1. An enzyme

A. is a biological catalyst.
B. is inactive when denatured.
C. is a protein.
D. all of the above are true.

2. When referring to enzyme kinetic, the velocity (V) is

A. the substrate concentration resulting in ½ Vmax.
B. the maximum rate of product formation.
C. the rate that substrate is converted to product.
D. not related to the Km.

Professor of Course	*Pro. Dr./ Khaled Bassiony*	Course coordinator	*Pro. Dr./ Khaled Bassiony*
Staff Course	*Pro. Dr./ Khaled Bassiony* *Dr./ Mohamed Younis*	Department Head	*Pro. Dr./ Samir El-Masry*

University of Sadat City	Academic Year:	2018-2019	Course Code:	B_1 - 5	Percentage	60%	GEBRI
			Academic Program:	Diploma 1st year	N. of Exam Paper	3	
	Level:	1st term	Department:	Molecular biology	Date:	Sunday 6 / 1/ 2018	
	Course Name:	Behavior and analysis of enzyme system	Total score:	60 degrees	Time allowed:	3h	

3. If an enzyme has a high Km for particular substance, that generally means that the enzyme has ..... affinity for the substrate.

A. a high.
B. no affinity.
C. a low.
D. an intermediate.

4. A noncompetitive enzyme inhibitor

A. increase Vmax.
B. does not change Vmax.
C. lowers Vmax.
D. none of the above.

5. Which of the following statements about allosteric enzymes is false?

A. they have catalytic and regulatory sites on the same subunit.
B. they are often the rate regulating step in a pathway.
C. they do not display standard Michaelis-Menton kinetics.
D. modulators bind to the regulatory site and alter the activity of the enzyme.

6. Which of the following statements is true of enzymes catalysts?

A. to be effective, they must be present at the same concentration as their substrate.
B. they can increase the equilibrium constant for a given reaction by a thousand-fold or more.
C. they lower the activation energy for conversion of substrate to product.
D. their catalytic activity is independent of pH.

7. A prosthetic group is

A. a part of structure of the enzyme.
B. permanently associated with the enzyme.
C. transiently bound to the enzyme.
D. a ligand of the enzyme.

8. Biological oxidation-reduction reactions always involve

A. formation of water.
B. transfer of electron (s).
C. transfer of hydrogen (s).
D. formation of bond.

9. Glucokinase can be catalyzed by

A. general hydrolyase enzyme.
B. need metal as ions cofactor.
C. transfer phosphate group to substrate.
D. all of the above.

Professor of Course	*Pro. Dr./ Khaled Bassiony*	Course coordinator	*Pro. Dr./ Khaled Bassiony*
Staff Course	*Pro. Dr./ Khaled Bassiony* *Dr./ Mohamed Younis*	Department Head	*Pro. Dr./ Samir El-Masry*

University of Sadat City	Academic Year:	2018-2019	Course Code:	B_1 - 5	Percentage	60%	GEBRI
			Academic Program:	Diploma 1st year	N. of Exam Paper	3	
	Level:	1st term	Department:	Molecular biology	Date:	Sunday 6 / 1/ 2018	
	Course Name:	Behavior and analysis of enzyme system	Total score:	60 degrees	Time allowed:	3h	

10. What happens to an enzyme when it denatures?

A. the activation energy of the reaction is doubled.
B. the activation energy of the reaction is lowered.
C. the optimal conditions for temperature of the enzyme are doubled.
D. the shape of the enzyme molecule is changed.

III. Answer the following questions **Total score (20 Marks; 4 Mark for each)**

1. Lysozymes and its mode of action.
2. Write on the factors affecting enzymes activity.
3. Write on the antioxidant enzymes.
4. Enzymes can use in molecular biology, explain their role and how can use in DNA cloning **(illustrate with drawing)**.

Good Luck & Best wishes.....

Professor of Course	*Pro. Dr./ Khaled Bassiony*	Course coordinator	*Pro. Dr./ Khaled Bassiony*
Staff Course	*Pro. Dr./ Khaled Bassiony* *Dr./ Mohamed Younis*	Department Head	*Pro. Dr./ Samir El-Masry*