

10- The small forms algae such as *chlorella* grow much less than large one ().

III-Complete the following:-

(20 marks)

- 1- The enzymecatalyze the reversible hydration of CO₂.
- 2- Phycobilisomes are.....
- 3- The pathway of autotrophic CO₂ fixation in algae is.....or.....
- 4- A culture has three distinct components.....and.....
- 5- The most important parameters regulating algal growth are.....,..... and.....
- 6- Cultures enterphase when net growth is zero, and cells may undergo dramatic biochemical changes.
- 7- Culture vessels should have some properties like.....,.....,.....and.....
- 8- Photorespiration defined as.....
- 9- Turbidostat culture is.....
- 10- Chlorophyll d present in.....while chlorophyll c present in.....

IV- Write short note about the following:-

(20 Marks)

- 1- Function of Carotenoids in photosynthesis.
- 2- Acetylene reduction.
- 3- Vitamins requirements by algae.
- 4- Death phase.
- 5- Aeration/mixing of the algal culture.
- 6- Semicontinuous culture.
- 7- Reduction of the light intensity by self-shading.
- 8- Nitrogenase enzyme.
- 9- Light as important parameter for algal growth.
- 10- Thylakoids of green algae.

V- Explain the differences between the following:-

(20 Marks)

- 1- Advantages and disadvantages of both batch and continuous cultures.
- 2- Temporal and spatial separation In non heterocystous nitrogen fixing cyanophyta.
- 3- The artificial and enrichment medium.
- 4- Heterotrophy and Phagotrophy.
- 5- Acetate-utilizing and sugar-utilizing algae.


With my best wishes ,,,,,,

Dr.Rania El-Shenoudi

EXAMINER COMMITTEE

DR. Rania El-Shenoudi

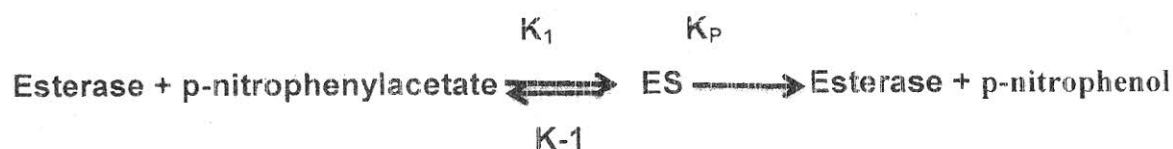
Prof. Dr. Atef Mohamed Abo-Shady

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF BIOCHEMISTRY			
COURSE TITLE:	Enzymes and Genetic Engineering		COURSE CODE: 14062	
DATE: 12-1-2012	JANUARY, 2013	TERM: FIRST	TOTAL ASSESSMENT MARKS: 60	TIME ALLOWED: 3 HOURS

Section (A) Enzymes: (20 marks).

Answer all the following questions:

Esterase with Mr 60, 000 catalyze the hydrolyze p-nitrophenyl acetate to p-nitrophenol and acetate.



Where $K_1 = 1 \times 10^7 \text{ M}^{-1} \cdot \text{sec}^{-1}$, $K_{-1} = 1 \times 10^5 \text{ sec}^{-1}$ and $K_p = 3 \times 10^5 \text{ sec}^{-1}$

- a- Calculate K_m in mM, and Turn over number **(3 Marks)**
- b- Calculate enzyme concentration in mg if the V_{\max} of enzyme is 6 mmol/sec **(3 Marks)**
- c- Detect the type of inhibitor If we add 10 mM PCMB the k_m will increase with no change in V_{\max} **(1 Marks)**
- d- Compare between Random and ordered single displacement reaction **(3 Marks)**
- e- Compare between classical and nonclassical competitive inhibitor and write the general properties of competitive inhibitor **(2 Marks)**
- f- Apply the K_m of enzyme in treatment of Leukemia **(2 Marks)**
- g- How determine activation energy **(3 Marks)**
- h- Write 5 applications of enzymes **(3 Marks)**

أطيب التمنيات بالنجاح و التوفيق

