المستوى الثالث - ميكروبيولوجي - طلاب وشعبتها الطلاب م ٢٠٦

Mansoura University
Faculty of Science
Botany Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
Second session, June, 2011

Educational Year: Third level. **Program (Branch): Microbiology**
Subject: M 306 **Course:** Algae and Physiology of Algae
Time: 2 hrs **Date: Saturday, 27 /5 /2013** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Question 1- Answer the following as requested, in the table specified for answer:

True or False : 8 marks

1- Amphitrophy –as mode of nutrition in algae- mean the requirement of some algae to external supply of vitamins and growth substances.

2- Cyanobacterial cell wall consists mainly from cellulose and not from peptidoglycans.

3- Regarding their habit, *Microcystis* represent a regular colony while *Merismopedia* represent an irregular colony.

4- In Chlorophyceae, biliproteins are present only in few orders such as Cladophorales.

Choose the correct answer : 5 marks

1- Which of the following algae is heterotrichous:

a- *Prototheca.* b- *Euglena.* c- Pleurocapsales.

2- *Hapalosiphon* belong to: a- sub-division: Mesokaryotic phycophyta.
b- class: Charophyceae. c- class: Prokaryotic phycophyta.

3- Epitheca, hypotheca, cingulum and sulcus are cellular structures in:

a- Dinoflagellates. b- Blue green algae. c- Diatoms.

4- Regarding their mode of nutrition, all algae are:

a- Autotrophic. b- Autotrophic but few are parasitic. c- Heterotrophic.

5- Chloroplasts of Ulothrix are :

a- Ripon shape. b- Star shpe. c- Girdle shape.

Complete : 7 marks

1- The following are examples of class cryptophyceae: a- ..... . b- ..... .
2- The main characteristics of algae are: a- .....
b- ..... c-.....
3- Usually, sampling of algae carried out by :
a- ..... b- .....

True or False				Correct answer					Complete		
1	2	3	4	1	2	3	4	5	1	2	3
									a- b-	a- b- c-	a- b-

Question 2- Describe the habitat, structure, reproduction and life cycle of *Ectocarpus sp.* .

Question 3- a- Draw with labels cyanobacterial cell structure.

b- Explain the following: i- Purification of algae. ii- Types of algal cultures.
iii- Methods of cultivation iv-Isolation of algae.

Examiners: 1- Dr. Abdel-Rahman I. Soliman.* 2- Prof.Dr. Yehya Azab

Best Wishes for Success. Dr. Abdel_Rahman Soliman

الفرقة الثالثة - ميكروبيولوجي - علم الإنزيمات النظرية ٢٠١٣

Botany Department
Faculty of Science
Mansoura University

Level : 3rd level (Microbiology)
Course: Enzymes
Date: 30/5/2013
Time : 2hr

Answer the following questions

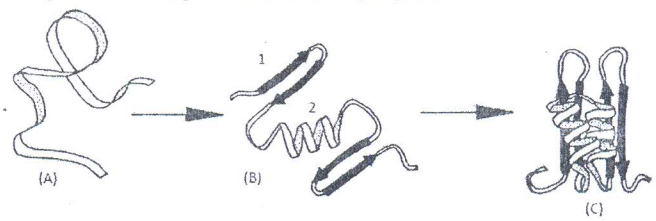
Question 1

(A) Mark each of the following statements with (Yes) or (No) (10 marks)

1-Lipase belongs to ligases. (....)
2-Urease breaks down urea into $H_2O + NH_3$. (....)
3-Pyruvic acid could be converted to acetaldehyde by pyruvate carboxylase. (....)
4-Ligases link two molecules in absence of adenosine compound. (.....)
5-Decarboxylases belong to ligases. (....)
6-Asparaginase is hydrolytic enzyme. (....)
7-NAD malic enzyme is located in plastids. (....)
8-Amidases belong to non hydrolytic enzymes. (....)
9-Catalase belongs to dehydrogenases.. (....)
10-Glutaminase is classified under transferases. (....)

B- Complete the following sentences:- (10 marks)

1. Complete the following sentences upon the following figure:-



- This figure explains .....
- (A) shows ....., (B) shows....., and it contains two structures; structure (1) which is ..... and its sheets could be described as ..... , and structure (2) which is .....
- (C) shows .....
- The active form among these forms is ..... because it contains .....
- This protein could be described as.....

2- Constitutive enzymes are..... , however, inducible enzymes are .....
3- Stereo-chemical specificity of enzymes means ..... and absolute specificity means ..... , however, linkage specificity means ..... and its example is .....
4- Extreme pH degrees decrease enzyme activity because .....
5- In protein purifications, batch experiment advantages are ....., ..., and .....

Question 2

(A)-Write the complete equations and the names of **enzymes** involved in each of the following reactions: (10 marks)

(1) C_4..... $C_3 + C_1$
(2) $C_4 + NADP$.....$NADPH + C_1 + C_3$
(3) C_3.....$C_2 + C_1$
(4) $C_4 + H_2O$ .....$C_4 + NH_3$
(5) $C_4 + NADP$ ..... $NADPH + C_4$

(B-(1) Write the chemical reaction catalyzed by glutamine synthetase. (10 marks)
(2) **What** is meant by isomerase?. Give an example with the enzymatic equation.
(3) **How** could you convert malic acid into C_2 compound enzymatically.

Question 3

Answer the following questions

1- Explain the different characteristics of the enzyme active site (2marks).

2- Give reasons for the following statements: (each 3 marks)

   a- Enzymes could not catalyze energetically unfavorable reactions

   b- The active site of carboxy peptidase is flexible

   c- The uncompetitive inhibitor cannot bind the free enzyme ,however, the noncompetitive inhibitor can

   d- Both substrate and product can inhibit enzyme activity

3- From your study, Give an example for the use of enzymes in our life, and suggest (from your mind) another hope for the use of enzymes (2 marks).

4- Why the enzyme could catalyze the conversion of substrate to product (4 marks).

.....

Best wishes

Prof. Hamed M. El-Shora Dr. Amr M Mowafy

الفرقة الثالثة - ميكروبيولوجي - مقرر ميكروبية وميكروبيولوجية الهواء م ٣١١

Mansoura University

Faculty of Science

Botany Department

جامعة المنصورة

كلية العلوم

قسم النبـــات

Final Examination

Second Term: May 2013

Educational Year: Third level			**Program (Branch): Microbiology**
Subject: Microbiology M 311	**Course(s): Microbial toxins and Microbiology of Water and Air**		
Time: 2 hrs	**Date: 03/06/2013**	**Fullmark: 60**	**Question mark: 20**

Answer the following questions:

Q 1	A- Give a brief account of distribution, sources and discharge of microorganisms in air. (8 marks). B- Write briefly on: 1- Different biotops of water microorganisms. (4 marks). 2- Only <u>one</u> abiotic and <u>one</u> biotic major factor limiting the growth of microorganisms in water. (4 marks) 3- Only <u>three</u> major water-borne diseases and only <u>three</u> major air-borne diseases. (4 marks).
Q 2	a- Discuss briefly the membrane filter technique to detect coliform bacteria in water (10 marks) b- Define algal blooms and give short account of the cyanobacterial toxins and their harmful effects. (10 marks)
Q 3	Mycotoxins in foods and feed are dangerous and produced by a variety of fungi such as *A. flavus, Penicillium citrinum , A. ochraceus, Fusarium roseum.* Explain the statement (5 marks)and answer the following: 1- What is the type of the toxin produced by each one of these fungi (7 marks) 2- The symptoms felt by the user and method(s) of treatments (8 marks)
	Examiners: **Prof. Dr.** ***Yehia Abdel-Moneim Osman Ellazeik*** ***Dr. Mohamed Ismael Abdel-Hameed***

المستوى الثالث - ميكروبيولوجيا جزيئية م ٣١٢

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جامعة المنصورة
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Final Examination in Botany
Second Term: June. 2013

Educational Year: Third Level **Program (Branch): Microbiology**
Subject: M(312) **Course(s): Molecular Plant Physiology**
Time: 2 hrs **Date: 3 / 06 /2013** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Q1 Define the term "stress phenomena in plants" Deduce the predicted types of stress in Mesophytic, Hydrophytic, and Xerophytic plants. **(20 mark)**

(20 mark)

Q2 Aquaporins play a critical role in controlling molecular mechanisms of water absorption in plants. Discuss this statement via addressing the following:

(i) What is meant by aquaporins?

(ii) Properties of aquaporins,

(iii) Illustrate a typical structure of an aquaporins

(iv) Genetic diversity of aquaporins in plants,

(v) Molecular mechanisms of regulation of aquaporins activity in plants.

(vi) Factors affecting the expression of aquaporins-encoding genes.

Q3 **(A) Describe the following:** **(6 mark, 2 mark each)**

i- Gene structure in Eukaryotes.

ii- Types of Membrane transport proteins.

iii- Transport systems of nitrate transport

(B) What does NRT2 stand for? Mention their classification based on protein structure, Illustrate the membrane topologies of NRT2, and Explain signals that regulate NRT2 activity. **(14 mark)**

Best wishes

Examiners: Prof. Mohamed Naguib Dr. Farag Ibraheem

المستوى الثالث - ميكروبيولوجي - الأغذية والألبان م ٢٠٧

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جامعة المنصورة
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Final Examination in Botany
Second Term: June. 2013

Educational Year: **3rd Level** Program (Branch): **Microbiology**
Subject: **(M. 307)** Course: **Food Microbiology**
Time: **2 hrs** Date: **6 / 6 /2013** Full mark: **60** Question mark: **20**

Answer the following questions:

1- **Question one**

Discuss the control of food borne microorganisms by low pH and organic acids (20 marks)

2- **Question Two**

Discuss each of the following:

i. Control of microorganisms in food by reduced water activity. (10 marks)
ii. Stages of microbial succession involved with sauerkraut production and explain this method of food preservation. (10 marks)

3- **Question Three**

Classify and discuss the biological and chemical spoilage of canned foods. (20 marks)

Examiners: Prof. Anwar Mankareous **Ass. Prof. Dr. Mervat H. Hussein**

المستوى الثالث - ميكروبيولوجي - تغذية معدنية وهرمونات نباتية ٢٠١٣

Mansoura University

Faculty of Science

Botany Department

Date: 10/6/2013

Final Exam for the 2nd Semester 2012/ 2013

Subject: Mineral Nutrition & Plant Hormones (M 310)

3rd level of Microbiology Program

Time allowed: 2hrs

Full Mark : 60 Marks

Answer the following questions

***Q1.* Discuss shortly the role of each of the following:** **(20 Marks)**

a- Auxins in cell enlargment.

b- Gibberellins in inducing alpha amylase.

c- Cytokinins in delay of senescence.

d- Abscisic acid in stomatal closure.

***Q2.* A. Complete the missing words in the following :** **(10 Marks)**

1- Hormone is .....

2- Cytokinins are mainly responsible for ..... and .....

3- Abscisic acid biosynthesis occurs within ..... while, cytokinins transport through.....

4- Accumulation of abscisic acid induces..... of leaves and inhibits ..... of seeds.

5- Gibberellins acts as a..... for auxins.

6- Gravitropism induced mainly by .....

7- Coconut milk diffusate is very rich with .....

8- Genetic dwarfism is a simple..... mutant.

9- Morphogenesis induced mainly by .....

10- Apical dominance is .....

P.T. O (من فضلك اقلب الصفحة)

Q2.B. **Write short notes on the following:** **(10 Marks)**

i - Occurance, availability, functions and deficiency symptoms of nitrogen and calcium.

ii - Solution culture.

Q3. **Discuss briefly:** **(20 Marks)**

a- Transport of ions from the symplasm to xylem vessels according to Broyer & Crafts theory

b- Carrier concept theory.

c- Pattern of ion distribution and circulation.

"Best of Luck"

Examiners:

Prof. Heshmat Aldesuquy **Prof. Wafa Shukry**