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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
Second Term: May 2013

Students: 4th Level Microbiology
Time: 2 hours.
Full mark: 60

Course: Cell physiology & Genetic control
Date: 28/5/2013
Question mark: 20

Answer The Following Questions:

Q1: **A- Complete the following sentences:- (10 marks)**

1- The amount of proteins expressed is decided by……. That is considered as ……

2- In a mesophyll cell, the chemi-osmotic coupling during photosynthesis occurs in…… however, this coupling occurs in…….. in *anabaena*

3- Inside the cell, when a molecule is picking up an electron it often……

4- All catabolic processes are considered as energetically …… reaction and the enzymes involved in these processes require ……. as a cofactor

5- …….. is synthesized by …….. polymerization and it **rarely** نادرا works as catalyst

6- During photosynthesis, the protons are pumped to…….. and so the pH is …….. in this compartment

7- Carboxylated biotin is a …… carrier, however, S-adenosylmethionine is …….. carrier

8- The force that keeps DNA double stranded is …… and the force that control the arrangement of the phospholipids bi-layer is……..

9- According to the second law of thermodynamics, the cell must be……. but it is …….. because ……..

10- During head polymerization, the reactive bond required for condensation reaction is carried on…… and it is generated by ……..

B- How could the cell do the following? (10 Marks)

1. Fold the polypeptide chains to generate enzymes
2. Generate ATP but not NADPH during photosynthesis
3. Activate amino acid to use it during protein synthesis
4. Drive energy via step 6 and step 7 of glycolysis

Q2: **A- Give reasons for the following facts: (10 marks)**

1. 1- ATP synthesis is an energetically unfavorable reaction
2. The presence of handle as a big part in almost all activated carrier molecules
3. The molecular ratio of NADP+/ NADPH is usually less than 1
4. ATP synthase sometimes hydrolyses ATP
5. Oxygen is required for Krebs cycle

P.T.O.

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B- Describe the following : (10 marks)

1. G1/S Cyclin (3 Marks)
2. Cell cycle Checkpoints (3 Marks)
3. Special transfer of biological information (4 Marks)

Q3: Answer the following using instructions between brackets (20 marks)

1. Genomic Imprinting (**Discuss**) **(5 marks)**
2. Switching gene expression by DNA inversion in bacteria (**Draw**) **(5 marks)**
3. Breakdown and re-formation of the nuclear envelope during mitosis (**Discuss and Draw**) **(5 marks)**
4. The outside of the DNA helix can be read by proteins (**Discuss only**) **(5 marks)**

Examiner: Dr. Ashraf Elsayed Dr. Amr M. Hassan

المستوى الرابع - هكروبيولوجي - الجينوم والأمان الحيوي م ٤١١

Mansoura University
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Botany Department

جامعة المنصورة
كلية العلوم
قسم النبـــات

Final Examination

Second Term: May 2013

Educational Year: Fourth level		**Program (Branch):** Microbiology	
Subject: Microbiology M411	**Course(s):** Genome and Biosafety		
Time: 2 hrs	**Date:** 01/06/2013	**Fullmark:** 80	**Question mark:** 26-27
Answer the following questions:			

Q 1

1- Define the followings: (10 Marks)

(a) Bioinformatics (b) BLAST (c) Accession Number (d) GenBank

2- Fill the provided Genetic Code table: (7 Marks)

First Letter	Second Letter: U	Second Letter: C	Second Letter: A	Second Letter: G	
U	F / L	S	Y / Stop	C / Stop / W	U C A G
C	L	P	H / Q	R	U C A G
A	I / M (Start)	T	N / K	S / R	U C A G
G	V	A	D / E	G	U C A G

3- True (T) or False (F) and correct the false one (s): (10 Marks)

(a) CAP3 can be used to convert a DNA sequence to a protein one. ( )

(b) While DDBJ represents the Japanese DNA sequences database, EMBL represents the European DNA sequences database. ( )

(c) Expasy is software to display DNA sequence chromatograms. ( )

(d) Sanger method for DNA sequencing depends mainly on Nanotechnology. ( )

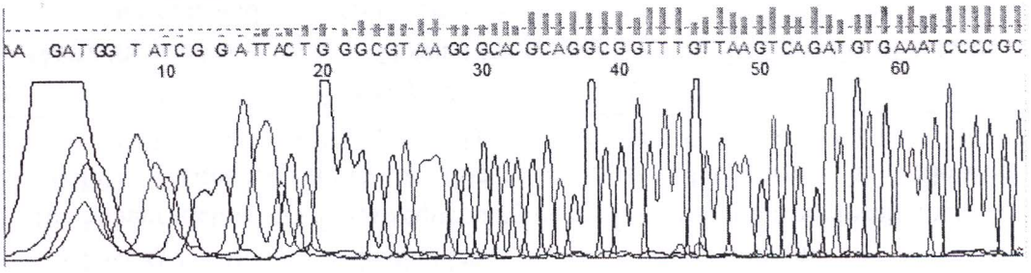
(e) DNA sequence could be displayed in FASTA format as following (>ATTUGGCACCTTGACCTTGACTAATCCGCGTKAGA). ( )

Q 2

A- For the displayed DNA sequence (5'-----3'): (13 Marks)

- Name the used software. - Discuss the quality. -Underline the ORF if present.
- Determine and write all possible reading frames for the highest resolution sequence and With the help of the genetic code table (you completed above)

translate them.



B- Choose the correct answer (14 marks):

1. Who must contact the Department of Biological Safety prior to beginning work on their project?

a. Principal Investigators who work with recombinant DNA
b. Principal Investigators who work with infectious agents
c. Principal Investigators who work with potential biohazards
d. All of these Principal Investigators

2-The most important safety principle when working with transgenic plants is containment.

a. True b. False

3-Which of the following statements is FALSE:

a. Pipetting of BSL-2 materials should be done in a biosafety cabinet.
b. In a BSL-2 lab, the biohazard symbol must be posted on the door and on potentially contaminated equipment.
c. A biological safety cabinet must be present in the lab when using BSL-2 materials.
d. All items potentially contaminated with BSL-2 materials must be autoclaved or chemically disinfected before they are disposed of.
e. Safety cups or sealed rotors must be used when centrifuging BSL-2 materials; otherwise, the centrifuge must be used inside a biosafety cabinet.

4-Which of the following practices should be utilized when working in a biological safety cabinet (BSC)?

a. Disinfect the work surface of the BSC before and after work
b. Disinfect all items which go into and come out of the BSC
c. Allow the BSC to operate before work begins and after work ceases
d. Do not store any items in the BSC e. All of the above

5-Which of the following practices are not allowed in the laboratory?

a. Eating and Drinking b. Applying Cosmetics
c. Handling Contact Lenses d. All of the above

6.Which of the following materials may be autoclaved?

a. Infected animal carcasses b. Sharps
c. Biological infectious waste d. All of the above

7. Biological Safety Cabinets (BSC) must be certified:

a. Daily b. Monthly c. Yearly d. Once in lifetime

Q 3

Mark T (true) or F (false) and correct the F statement:

1- Potential for weediness is equivalent term for outcrossing.
2- Cry1Ab, derived from *Bacillus thuringiensis*. Delta-endotoxins, expressed in maize, acts by selectively binding to specific sites localized on the brush border

	midgut epithelium of susceptible insect species. 3- Environmental risk assessment for GMOs typically addresses the **intended** changes lead to unintended adverse effects and the **unintended** changes that could lead to unintended adverse effects? 4- Risk management is a process as to whether or not the overall risks are acceptable or manageable, including, where necessary, identification of strategies to manage these risks, including monitoring. 5- While "safe" and "safety" are ideal and desirable concepts, they are unattainable in absolute terms and safety cannot be measured directly 6- Multilateral agreements relevant to biotechnology such as The Convention on Biological Diversity was concerned with the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. 7- The Cartagena Protocol on Biosafety sets up procedures for transboundary movement of living modified organisms in absence of national regulations. 8- The Cartagena Protocol on Biosafety aimed at harmonization of Internationally agreed definitions and methodology for risk assessment. 9- The Cartagena Protocol on Biosafety sets up mechanism for information sharing inside the each country. 10- National Biosafety System in Egypt consists of National Biosafety Committee, Institutional Biosafety Committee and Departmental Biosafety Committee. 11- Biofatey level 4 is Suitable for work with dangerous agents that pose a high individual risk of aerosol transmitted laboratory infectious and life threatening disease e.g.TB and/or HIV. 12- Biosafety level 3 is the only level which requires primary and secondary barriers because of it nature 13- Laboratory biosafety is just designed to protect the products and adherence to a specific protocols.
	Examiners: **Prof. Dr.** ***Yehia Abdel-Moneim Osman Ellazeik*** ***Dr. Ahmed Abdo AbdelRazak***

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	Examiners: **Prof. Dr.** ***Yehia Abdel-Moneim Osman Ellazeik*** ***Dr. Ahmed Abdo AbdelRazak***

المستوى الرابع - ميكروبيولوجي - أيض ومسارات أيضية م ٤١٠

Metabolism and Pathways
4th level (Microbiology.)
Date: May/2013

Botany Department
Faculty of Science
Mansoura University

....

Question 1

A-**Outline** each of the following: (20 maks)

i-The proposed scheme for transporting of nitrate and ammonia at the plasmalemma of plants.

ii-Role of aminotransferase in ammonia assimilation.

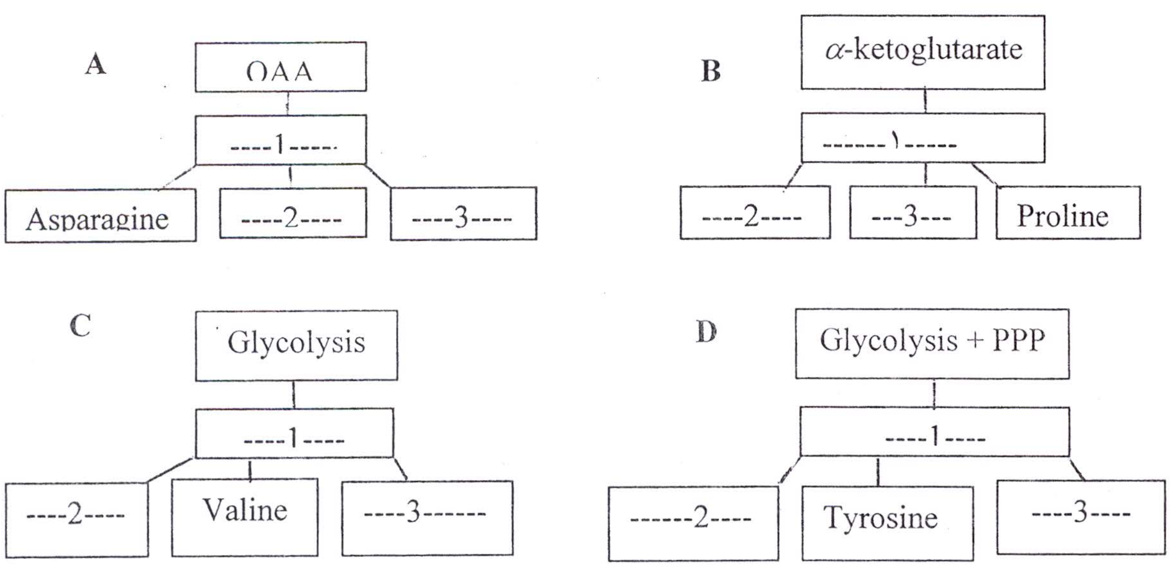
iii-Synthesis of proline from glutamate.

iv-Ornithine synthesis from N-acetyl glutamate.

B-**Mention** the factors controlling the transcription and activity of nitrate reductase in nitrogen metabolism.

Question 2

A-**Complete** the spaces with amino acids derived from the various metabolites: (10 marks).



B-**What** are the functions of each of the following g pathways in plant life: (10 marks)

Glyoxylate Cycle - Glycolate Cycle - Pentose Shunt - Electron Transport System.

Question 3

A-**Illustrate** with equations each of the following: (10 marks)

1-β-oxidation of fatty acids.

2-Photorespiration.

B-**Briefly** explain the main factors affecting the rate of respiration. (10 marks)

With best wishes

Prof Samy Abo-Hamed *Prof. Hamed M El-Shora*

المستوى الرابع - ميكروبيولوجي - م ٢٠١٤ تغذية صوية

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Final Examination in Botany
Second Term: May. 2013

Educational level: Fourth **Program (Branch): Microbiology**
Course code: M(409) **Course(s) name: Biotechnology**
Time: 2 hr **Date: 8/ 6 /2013**

Answer the following questions:

Q1 "Intellectual property rights for plant biotechnology (IPR)" **Discuss-in brief- this statement.**

Q2 **A- Write short notes on: (10 marks)**

1- Basic hydroponic systems and how they work. (4 marks)
2- Formation of biodiesel from triglyceride oils. (3 marks)
3- Biosynthesis of polyhydroxyalkanoate (PHA). (3marks)

B- Discuss the following: (10 marks; 5 marks for each)

1-"Biofuels and other forms of renewable energy aim to be carbon neutral or even carbon negative"
2- Classification of bioreactors based on the mode of operation.

Q3 **A- Complete the following sentences: (10 marks; each blank of 0.5 mark)**

1- …….. had postulated the ''transforming principle".
2- …….proposed that cell is the basic unit of organisms.
3- ……is an apparatus used to introduce gasses into the bioreactor vessel.
4- Coolant flows through the …….. to regulate the temperature.
5- In Stirred tank bioreactor Air is disperse by ……
6- ……also known as a tower reactor.
7- ……..is a thick dark syrup produced by boiling down juice from sugarcane.
8- …… bacteria capable of the direct conversion of cellulose into ethanol.
9- *FAME* referring to …….
10- Green manures are often known as ……
11- Low ethanol blends, from ……. to ……., are known as gasohol.
12- …… & …… are types of Air-lift bioreactors.
13- Agitators consist of a …… and ……
14- Organic farmers rely on ……, ……., ……. and ……

B- Define the following terms: (10 marks; each of 2 marks)

1- ABE fermentation
2- Genetic transformation
3- Baffles
4- Green manures
5- Urban agriculture.

Best of luck

Prof. Dr. Mohammed Naguib Abdelghany Hasaneen
Dr. Amany Mostafa Saber Kazamel

M. N. H.
A. M. Kazamel

الفرقة الثالثة - ميكروبيولوجيين - مقدمة في الميكروبيولوجيا الطبية ٢٠١٣

Mansoura University

Faculty of Science

Botany Department

جامعة المنصورة

كلية العلوم

قسم النبـــات

Final Examination: May 2013

Educational Year: third Level			**Program (Branch): Microbiology**
Subject: M308	**Course(s): Introduction to Medical Microbiology**		
Time: 2hrs	**Date: 13/06/2013**	**Fullmark:** 60	**Question mark: 20**

Answer the following questions:

Q-1	A- What are the different steps involved on successful bacterial infection? (5 marks) B- Explain the role of each step of successful infection. (15 marks)
Q-2	Virulence factors of a microorganism are responsible for its ability to cause disease. Explain the statement (8 marks) and detail the different types of virulence factors (6 marks) and their contribution to the establishment of pathogenicity (6 marks).
Q-3	A- What is Koch's postulates and how can prove it experimentally? (10 marks) B- How can you conclude that a potential pathogen is being clinically significant? (10 marks).
	Examiners: Prof. Dr. *Yehia Abdel-Moneim Osman Ellazeik*

المستوى الرابع- ميكروبيولوجيا تطبيقية وصناعية م ٢٠١٧

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El-Mansoura, Egypt

جامعة المنصورة
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المنصورة - مصر

Final Examination in Botany
Second Term: Jun. 2013

Educational Year: Fourth Level **Program (Branch): Microbiology**
Subject: Micro. (407) **Course(s): Applied & industrial Microbiology**
Time: 2 hrs **Date: 15 /6 /2013** **Full mark: 60** **Question mark: 20**

Answer the following questions:

2- b-

1. **Explain the stages in the complete freeze-drying process and their applications.**
2. **Describe the main stages of penicillin production**

3-

A. **What are the properties of a useful industrial microbe?**
B. **How do fuel cells (MFCs) work and how much power could a MFC theoretically produce today if installed at a waste water treatment plant?**
C. **Differentiate between batch mode and fed batch mode of fermentation.**
D. **Describe the citric acid production by aerobic bioprocesses.**

With my best wishes

Examiner: Dr. Ahmed Shawky Gebreil