



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF BOTANY

EXAMINATION FOR SENIORS (FORTH YEAR) STUDENTS OF BIOLOGY-SPECIAL BOTANY

COURSE TITLE: BIOENERGETICS

COURSE CODE: BO4101

DATE: 27 DECEMBER, 2016

TERM: FIRST

TOTAL ASSESSMENT MARKS: 100

TIME ALLOWED: 2 HOURS

Answer the following questions (100 Marks)

I. Choose the letter that shows the right answer (15 Marks; 1.5 each):

- Number of turns to synthesize 1 molecule of fatty acid (C10) is
(a) 4 (b) 7 (c) 2 (d) 8
- Fats and oils are the storage forms of reduced carbon in
(a) glycolysis (b) chloroplasts (c) mitochondria (d) seeds
- Stored lipids are metabolized finally to
(a) sucrose (b) fatty acids (c) starch (d) glycerol
- Membranes of oil body have
(a) no lipids (b) a double layer (c) pigments (d) a single layer
- Number of FADH₂ produced in citric acid cycle is
(a) 2 (b) 1 (c) 10 (d) 4
- Lipase converts triglycerides to fatty acids and glycerol in
(a) plastids (b) glyoxysomes (c) cytosol (d) oil body
- In inner mitochondrial membrane, import of pyruvate from cytosol is exchanged for
(a) OH⁻ (b) CO₂ (c) ADP (d) ATP
- Fat degradation occurs in
(a) glyoxysomes only (b) oleosomes only (c) cytosol only (d) a,b,c+mitochondria
- Number of carbon atoms of acetyl CO_A is
(a) 3 (b) 2 (c) 3 (d) 6
- The starting compound of oxidative reactions of pentose phosphate is
(a) glucose 6-p (b) fructose 6-p (c) ribose 5-p (d) ribulose 5-p

II. Define each of the following (15 Marks; 3 each):

NADH₂, photophosphorylation, glyoxysomes, enthalpy, first law of thermodynamics

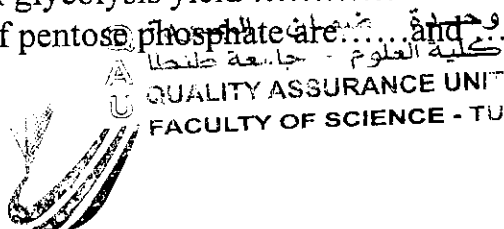
III. Write short notes on 6 only of the following (42 Marks; 7 each):



- Biosynthesis of palmitic acid in plastids.
- Glyoxalate cycle.
- Gluconeogenesis.
- The energy released from oleic acid by β -oxidation.
- Structure of ATP synthase.
- Chemiosmosis in chloroplasts.
- Glycolysis

IV. Complete the following statements (28 Marks; 2 each):

- Protons of respiratory chain are pumped from ... to ... which produces a force called...
- Pentose phosphate pathway occurs in
- Function of adenine nucleotide translocator is
- Plant respiration rate is controlled by
- Pyruvate + NAD⁺ + CO_A yield
- Second protein complex of respiratory chain is called ... and its function is
- The energy investing reactions of glycolysis yield
- Products of oxidative reactions of pentose phosphate are and

Best Wishes



	Tanta University Faculty of Science Botany Department	
Theoretical exam.	Assessment = 100 marks.	Time allowed: 2 hours.
Course Title: Biocontrol of plant diseases.		Course code: MB4141.
Special Botany program.		Academic year: 2016/2017.
Juniors (Level: 4 – Semester: 1)		5 January 2017.

(1) A. Give the definition of **10 only** of the following: (20 marks)

1. Exclusion.
2. (Ti) plasmid.
3. Rhizosphere.
4. Predator.
5. Cryprotecting media.
6. Pre-harvest intervals.
7. Disease suppressive soils.
8. Biocontrol in entomology.
9. Pathogen.
10. Biocontrol in plant pathology.
11. Shelf life.

B. Illustrate the epizootics in Bacteria, viruses and fungi. (10 marks)

(2) Put \checkmark or X and correct the false: (20 marks)

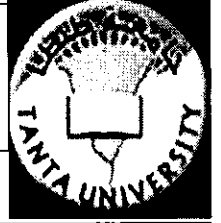
1. Half of all predators are Coleopterans.
2. Bt bacteria has the power to control insects with alkaline pH in the gut.
3. From advantages of biological control, BCAs are effective against specific plant diseases.
4. Chitosan is a toxic polymer of alpha-1,4-glucoseamine produced from cuticle.
5. The action of any organism that suppresses the normal growth of a plant pathogen refers to parasitism.
6. One time or occasional application maintains pathogen populations below threshold levels called occasional application.
7. AQ10 is a mycofungicide specific to blight diseases.
8. Parasitoids are restricted to Neuroptera and Odonata.
9. Non-pathogenic bacterium, *Agrobacterium radiobacter* strain K84 produces penicillin antibiotic.
10. Conservation biological control usually done by government authorities.

(3) Complete the sentence: (30 marks)

1. *Trichoderma* species have been very successfully used as mycofungicides because they are 1.....2.....3.....4.....5.....6.....7.....
2. The fungus.....the cause of gummosis or dieback of apricot trees and dead arm of grapevine, is an example of..... It was controlled by the saprophytic fungus.....where the mechanism is.....



TANTA UNIVERSITY
FACULTY OF SCIENCE
BOTANY DEPARTMENT



Final First Exam for 4th Level (Botany)

Course Title:	Environmental Issue		Course Code: Bo 4111
22, January, 2017	Term: First	Total assessment marks: 100	Time Allowed: 2hour

السؤال الأول: أكمل العبارات التالية (٢٠ درجة)

- ١- من مصادر الطاقة المتجددة و..... و..... (٤ درجات)
- ٢- تقدم النباتات البرية خدمات للإنسان منها..... و..... و..... (٤ درجات)
- ٣- جزئ واحد من غاز الكلوروفلوروكربون له القدرة على تدمير..... من غاز الأوزون (٤ درجات)
- ٤- مصدر الطاقة المتجددة الذي يطلق عليه وقود الفقراء هو..... (٤ درجات)
- ٥- الغازات الدفيئة هي..... (٤ درجات)

السؤال الثاني: ضع علامة (√) أو (x) أمام العبارات التالية، مع تصويب الخطأ (٢٠ درجة)

- ١- يقدر العمر الافتراضي للفحم الحجري حوالي ٤٠٠ سنة () (٤ درجات)
- ٢- تتميز طبقة الأيونوسفير بالصقيع الشديد () (٤ درجات)
- ٣- ترتبط كمية غاز الأوزون ودرجة الحرارة ارتباطاً طردياً () (٤ درجات)
- ٤- من أهداف المحميات الطبيعية الحفاظ على التنوع البيئي () (٤ درجات)
- ٥- من أسباب التصحر النمو السكاني السريع () (٤ درجات)

السؤال الثالث: بما تفسر كلا مما يأتي (٣٠ درجة)

- ١- رغم توافر مصادر الطاقة الكهربائية إلا أنها تستخدم في نطاق محدود (١٠ درجات)
- ٢- فوتونات الأشعة فوق بنفسجية و علاقتها بطبقة الأوزون (١٠ درجات)
- ٣- التصحر على امتداد بحيرة ناصر (١٠ درجات)

السؤال الرابع: أجب على إحدى المجموعتين (٣٠ درجة)

المجموعة الأولى: ١- وسائل تخزين الطاقة لاستخدامها وقت الحاجة إليها (أذكر وسيلتين فقط) (١٥ درجة)

٢- تفسير ظاهرة الاحتباس الحراري (١٥ درجات)



المجموعة الثانية: ١- أهمية الوقود والزيوت الحيوية مقارنة بالوقود الحفري والزيوت المعدنية (١٥ درجة)

٢- أسس اختيار المحميات الطبيعية ودور تلك المحميات في الحفاظ على التنوع الحيوي (١٥ درجة)

تمنيتي بالتوفيق والنجاح

Examiners: Dr. Dalia Abd El-Azeem Ahmed and Dr. Kamal Shaltout

Correctors: Dr. Kamal Shaltout, Dr. Dalia Abd El-Azeem Ahmed, Dr: El-Sayed Morsi

 1989	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAM (FIRST TERM, JAN. 2017) FOR THE FOURTH YEAR (BOTANY SPECIAL)			
	COURSE TITLE	PLANT MOLECULAR SYSTEMATICS	COURSE CODE: BO4107	
	JAN. 2017	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HRS	

Please answer all the following questions:

1) Compare between the following: (30 marks)

- a) RFLP and RAPD markers
- b) Mitochondrial and nuclear genomes
- c) Allopatric and sympatric speciation

2) Complete the following: (20 marks)

- a) Purines include the nucleotide bases and
- b) Tandem sequence repeats of about 9-100 base pairs are called
- c) The result of a molecular phylogenetic analysis is expressed in
- d) A protein is composed of a string of
- e) The enzyme added to catalyse the PCR reaction is called

3) Define the following scientific terms: (20 marks)

- a) Plastid genome
- b) Parapatric speciation
- c) Primer
- d) Species



4) Write briefly on the following: (30 marks)

- a) Isozymes
- b) Sanger sequencing
- c) Cladogenesis
- d) DNA function
- e) Microsatellites
- f) Hybrid speciation

Best wishes,

Examiner:

Dr. Mohamed El-Esawi

 1969	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAM (FIRST TERM, JAN. 2017) FOR THE FOURTH YEAR (BOTANY SPECIAL)			
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Best wishes,

Examiner:

Dr. Mohamed El-Esawi

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	Tanta University - Faculty of Science - Botany Department			
	EXAMINATION FOR JUNIOR (4th YEAR SPECIAL BOTANY)			
Course Title	الكتابة العلمية والعروض		Course Code: BO 4113	
Date	Jan 2016	Term: First	Total Assessment: 100 Marks	Time Allowed: 2 Hours

أجب على كل من الأسئلة التالية (٥ درجات لكل نقطة: المجموع الكلي ١٠٠ = درجة)

- ١- أذكر أهم أنواع الكتابة العلمية؟
- ٢- ما المقصود بالكلمات المفتاحية، وما الهدف منها؟
- ٣- أذكر ثلاثة من أهم مميزات العنوان الجيد؟
- ٤- أذكر ثلاثة من أهم مميزات الملخص؟
- ٥- ما هو الهدف الأساسي من مقدمة أي نوع من الكتابة؟
- ٦- أذكر ثلاثة من أهم ما يجب مراعاته عند الشروع في كتابة النتائج؟
- ٧- وضح كيف تعد المناقشة أصعب الأجزاء في الكتابة؟
- ٨- ماهي أشهر الطرائق المستخدمة في كتابة المراجع؟
- ٩- ما الذي يجب أن تحتويه كلمة الشكر؟
- ١٠- متى يجب، ومتى لا يجب كتابة تفاصيل الطرائق المستخدمة في إعداد البحث العلمي؟
- ١١- متى يكون عرض النتيجة كشكل أفضل من عرضها كجدول؟
- ١٢- أعط مثال للأخطاء الشائعة في الجداول؟
- ١٣- أذكر ثلاثة مما يجب مراعاته عند اختيار الصور لوضعها في البحث أو الكتاب العلمي؟
- ١٤- ما المقصود بمعجم المصطلحات، ومتى يجب كتابته؟
- ١٥- ترتب ورقة الخطأ والتصويب بعدة طرق، أذكر إحداها؟
- ١٦- أذكر أهم فوائد التفكير العلمي؟
- ١٧- ماهي الخطوات الأساسية للمنهج العلمي؟
- ١٨- أذكر مراحل الذاكرة الأربعة، مع التفريق بياجاز بينها؟
- ١٩- وضح الفرق بين الطرق الشائعة لتذكر المادة العلمية أثناء العرض، مع تحديد أفضلها؟
- ٢٠- عرف التغذية الراجعة، وكيف يمكن التعامل معها بعد العرض؟

Examiner: Dr. Kamal Shaltout

لا يسأل

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAM (FIRST TERM, JAN. 2017) FOR THE FOURTH YEAR (BOTANY CHEMISTRY)			
	COURSE TITLE	PLANT MOLECULAR SYSTEMATICS	COURSE CODE: BO4105	
	JAN. 2017	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HRS	

Please answer all the following questions:

1) Complete the following: (20 marks)

- DNA code is read and converted to protein in two steps called and
- All of the genes within a cell are called
-are different forms of a protein with same catalytic activity but with different molecular weight.
- A gene is a code composed of a string of
-is a mathematical structure used to model the actual evolutionary history of a group of sequences or organisms.

2) Compare between the following: (30 marks)

- RAPD and SSR markers
- Nuclear and plastid genomes
- Peripatric and parapatric Speciation

3) Define the following scientific terms: (20 marks)

- Species
- Cladogenesis
- Taq polymerase enzyme
- Proteins



4) Write briefly on the following: (30 marks)

- Sanger sequencing
- Polymerase chain reaction
- Allopatric speciation
- DNA structure
- Amplified fragment length polymorphism (AFLP)
- Speciation by gene transposition

Examiner:

Dr. Mohamed El-Esawi

وحدة ضمان الجودة
كلية العلوم - جامعة طنطا
U QUALITY ASSURANCE UNIT
FACULTY OF SCIENCE - TU
Best wishes

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION (JANUARY 2017) FOR THE FORTH YEAR SPECIAL BOTANY STUDENTS			
COURSE TITLE	GENETIC ENGINEERING		COURSE CODE: BO4103	
DATE:	JANUARY, 2017		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions:

- 1) Write on only three the followings (30 marks)
 - a) Explain the functions of *Virgenes*.
 - b) Explain the problems encountered with gene expression in prokaryotes.
 - c) Mention the steps to evaluate transgenic plants.
 - d) Mention the types of cloning vectors.

- 2) Compare between only four of the followings: (20 marks)
 - a) Insertion and replacement cloning
 - b) Prokaryotic and Eukaryotic expression vectors
 - c) Selectable markers and reporter genes with examples.
 - d) Electroporation and Microinjection
 - e) Cosmids and plasmids.

- 3) Give reasons for: (20 marks)
 - a) *Agrobacterium*-mediated system can not be used for transformation of monocotyledous plants.
 - b) Genomic clones can not be expressed in prokaryotic expression vectors.
 - c) Use of Gold metal and Helium gas in Biolistic Gun.
 - d) MS-medium is commonly used in plant tissue culture.



- 4) Complete the followings: (10 marks)
 - a) Production of fungal resistant plants can be achieved by insertion of gene, while viral resistant plants are produced by insertion of gene
 - b) Production of drought tolerant plants can be achieved by insertion of gene, while salt tolerant plants are produced by insertion of gene

- 5) With labeled drawings only illustrate the followings: (20 marks)
 - a) *Ti*-plasmid.
 - b) Diagrammatic representation of the Biolistic Gun.

Best wishes

Examiner committee:
 Prof. Dr. Ashraf Haider
 Prof. Dr. Hanan Ibraheem

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	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
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Prof. Dr. Ashraf Haider
Prof. Dr. Hanan Ibraheem

جامعة طنطا

 1989	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY		
	THEORITICAL EXAMINATION FOR FOURTH YEAR STUDENTS OF CHEM/ MICROBIOLOGY		
COURSE TITLE:	PHYSIOLOGY OF ALGAE		COURSE CODE:BO4123
DATE:	JANUARY 2017	TERM: 1	TOTAL ASSESSMENT MARKS: 100
			TIME ALLOWED: 2H.

Question 1: Give short accounts on the followings (30 marks)

- 1- Chemical structure of cyanocobalamin (vitamin B₁₂).
- 2- Photobioreactors: uses, advantages and disadvantages.
- 3- Chemical structure of the chlorophyll molecule.
- 4- Lag phase in the standard algal growth curve.
- 5- Light and combined nitrogen as factors affecting N₂ fixation in algae.
- 6- Photoassimilation of acetate by algae.


Question 2: Complete the following sentences (25 marks)

- 1- Mixotrophic algae are.....
- 2- The Phycobiliproteins pigments in algae are.....
- 3- Heterotrophy is defined as.....
- 4- Acetylene inhibits N₂ fixation because.....
- 5- Nitrogenase enzyme structure is.....
- 6- Factor B is formed by.....
- 7- A continuous culture is.....
- 8- Xanthophylls are.....
- 9- Algae need Fe and Cu for their growth because.....
- 10- A batch culture is.....

Question 3: By identification only, compare between each pair of the followings (20 marks)

- 1- The requirement of Mg and Co elements for algal growth.
- 2- N₂-fixation in heterocystous and nonheterocystous cyanophyta
- 3- The exponential phase and the death phase of an algal culture.
- 4- Indices of algal growth by optical density and counting cells techniques.
- 5- The oxytroph (acetate) and haplotroph (glucose) algae.

د/س/ك/و/ال/ا/ب/ا/س

 1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY		
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د/س/ع/الاسات

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جامعة المنيا

 1959	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY		
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