

**Assiut University - Faculty of Science**  
**Botany Department**

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Examination in **Phytosociology**      **Third Level**  
**Time allowed : 2 Hours**      **342B**      **May. 2018**

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**Answer the following questions**

I – What is the ecological importance and indications of each of the following: ..... ( 15 marks )

Minimal area

Association index

Ecological amplitude

Biological spectrum

II- Write in detail on **TWO ONLY** of the following:( 20 marks )  
( 20 marks )

a- The phytosociological tables.

b- Frequency diagram as a test for homogeneity in the plant communities.

c- Fidelity and characteristic species.

III- Write short notes on : .....( 15 marks )

a- Factors affecting the number of species in the plant groups.

b- Presence and constancy .

c- Stratification.

**Good Luck**

**Prof. Dr. Fawzy M. Salama**

السؤال الثالث : ( ١٥ درجة )

أ- إذا كان ترتيب القواعد النيتروجينية في جزء من شريط DNA هو

5-ATG TAG AGT AGA TAA CCG ATT-3

وضح ما يلي:

(١) تتابع الشريط المتكامل معه في جزء DNA

(٢) تتابع القواعد النيتروجينية المنسوخة من الخيط المكمل على mRNA

(٣) عدد الأحماض الأمينية الناتجة من الترجمة مع تحديد شفرة البدء و شفرة الإيقاف

ب- في حالة عدم التوافق الذاتي في نبات الدخان إذا تم التهجين بين أفراد تركيبها ذكر  $S_1S_2 \times S_1S_2$  أنثى فكم عدد الأفراد الناتجة؟ فسر إجابتك؟

ج - وضح بالرسم كيف أن وجود اللاكتوز في البيئة يؤدي إلى تنظيم الـ *Lacoperon* في بكتريا *E. coli*؟

السؤال الرابع : ( ١٠ درجات )

عند التلقيح الاختباري لفرد خليط في ثلاث مواقع كان النسل الناتج كما يلي:

$$\frac{A \quad B \quad C}{a \quad b \quad c} \times \frac{a \quad b \quad c}{a \quad b \quad c}$$

العدد	التركيب
88	a B C
314	a b c
17	a B c
13	A b C
73	A B c
77	a b C
316	A B C
102	A b c
1000	TOTAL


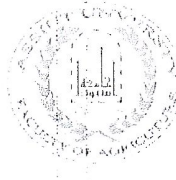
المطلوب :-

١- حساب المسافة بين الجينات الثلاثة

٢- ارسم الخريطة الوراثية

انتهت أسئلة الامتحان مع خالص التمنيات بالنجاح والتوفيق

لجنة الممتحنين: أ.د. عبداللطيف هشام ، د. أمير عفت  
عبداللطيف هشام

	<p>الامتحان النهائي لمادة: أسس الوراثة (٢١٥ ز)          الفصل الدراسي الثاني          لطلاب كلية العلوم – ساعات معتمدة          للعام الجامعي ٢٠١٧-٢٠١٨          الزمن : ساعتان</p>	
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السؤال الأول: (١٥ درجات):

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- Codon & Anticodon
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- الصفة المرتبطة بالجنس & الصفة المتأثرة بالجنس

ب- أذكر المتطلبات اللازمة لعمل PCR ؟ -

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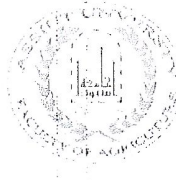
أضع علامة (✓) أو (X) أمام العبارات التالية:

- ١- [ ] التركيب الوراثي Genotype للفئران الصفراء اللون يكون دائما خليط.
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- ٥- [ ] تبدأ عملية النسخ عندما يتحد انزيم DNA Polymerase بالـ DNA في موقع يطلق عليه promoter

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- ٥- [ ] المادة الكيميائية او الفيزيائية التي تسبب حدوث الطفرة.

← انظر خلفه

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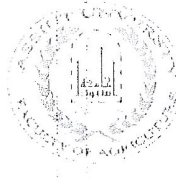
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← انظر خلفه

II. Put a (✓) in front of the correct sentence or (X) in front of the wrong one; correct the underlined word(s) only, if wrong (5 Marks, one point free):

1.	Higher Km (Michaelis-Menten constant) means <u>higher</u> affinity of an enzyme to its substrate	
2.	Every enzyme-catalyzed reaction attains its steady state upon <u>saturation</u> of its active sites.	
3.	Compounds that inhibit the enzyme activity <u>and similar</u> to their substrates are called uncompetitive inhibitors	
4.	Every enzyme code consists of the letters "EC" (Enzyme Commission) followed by four numbers separated by periods.	
5.	<u>Lyases</u> catalyze non-hydrolytic addition or removal of groups from substrates.	
6.	Reduced compounds have <u>higher</u> energy content than their oxidized forms.	

III. Write down the scientific term best expresses the following phrases (10 marks, one point free):

	Phrase	Scientific Term
1.	A structural change in a protein that results in a loss (usually permanent) of its biological properties	
2.	A site, other than the active site at which a regulatory effector (inhibitor or activator) binds	
3.	.....changes of a protein molecule can occur in response to interactions with other molecules such as substrates, substrate analogs or coenzymes.	
4.	Maintaining the steady state of a metabolic process by its internal factors only is called.....	
5.	The theory best explains the mode of enzyme action is the.....	
6.	The type of inhibition that slows the production line when products begin to build up and is an important way to maintain homeostasis in a cell is .....	
7.	The enzyme class "EC.3", which uses water as part of all its catalyzed reactions is called ....	
8.	The Lineweaver-Burk plot can be used to distinguish the different types of ....	
9.	The energy in Kcal/mole required to convert one mole of substrate is known as.....	
10.	Moles of substrate converted to product per second per mole of the active site of the enzyme	
11.	A biological catalyst that works at physiological conditions only; otherwise it is denatured.	

Best wishes, Dr. Refat Abdel-Basset  
Professor of Plant Physiology

*Ref* 2018  
29/4





Course name: **Enzymes and Hormones**

Course number: **252 B**

**Final Exam., June 2018**

### **A: Enzymes (25 Marks)**

I- **Choose the correct answer** (10 Marks, one point free):

1.	Glucose dehydrogenase means (a) it is an enzyme because of the suffix "ase" (b) its substrate is glucose (c) the enzyme class is Oxidoreductases (EC.1) and the nature of the reaction is the transfer of hydrogen via "Hydrogenase" not "Oxidase" activity (d) all of the above.
2.	Ligases (a) join together two molecules (b) break down ATP (c) an example is "synthetases" (d) all the above.
3.	All the following equations are correct but not: (a) $E + S \leftrightarrow ES \text{ complex} \rightarrow E + P$ (b) $E + I \leftrightarrow EI \text{ complex} \rightarrow E + P$ (c) $E + I \leftrightarrow EI \text{ complex} \rightarrow XXX$ (d) $E + S + I \leftrightarrow ES + EI \rightarrow E + P + EI$
4.	Enzymes enhance the reaction rate by (a) binding to the substrate (b) colliding with the substrate (c) lowering the activation energy required to reach the transition state (d) all of the above.
5.	Enzymes resemble catalysts; they both (a) contain active sites (b) reduce the activation energy (c) tolerate extreme temperatures (d) a and c.
6.	A chemical compound that inhibits an enzyme-catalyzed reaction by binding to its active site is called (a) inhibitor (b) allostric inhibitor (c) competitive inhibitor (d) none of the above.
7.	Enzymes that catalyze intramolecule rearrangement within a single molecule are: (a) Transferases (b) Isomerases (c) Hydrolases (d) a and b.
8.	Metabolic regulation takes place by (a) coarse adjustment (b) fine adjustment (c) no adjustment (d) a and b.
9.	Specificity of the enzyme to its substrate is classified into (a) one (b) two (c) three (d) four types.
10.	Apoenzymes (a) are active enzymes (b) are inactive enzymes (c) lack coenzymes (d) b and c.
11.	Proteins have (a) primary structure (b) primary and secondary structures (c) primary, secondary and tertiary structures (d) primary, secondary, tertiary and quaternary structures.

**Second question:** Compare between **4 ONLY** of the following :  
..... (12 Degrees, 3 degrees each)

1. Perianth, Inflorescence and Gynoecium of Geraniaceae and Nyctaginaceae.
2. Perianth, Inflorescence and Gynoecium of Poaceae (Gramineae) and Liliaceae.
3. Androecium, Gynoecium and fruits of Cruciferae (Brassicaceae) and Apocynaceae.
4. Inflorescence, Gynoecium and fruits of Apiaceae and Lamiaceae.
5. Perianth, Androecium and Gynoecium of Caryophyllaceae and Chenopodiaceae.

**Third question:** Write short notes on **4 ONLY** of the following ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, (20 Degrees, 5 degrees each).

1. Family Papilionaceae (Fabaceae).
2. Types of fleshy fruits.
3. Generation of female gametes.
4. Cymose inflorescences.
5. Gynoecium or Pistil.

Prof. Dr. Zeinab A. R. El Karemy



**First question: Complete 18 ONLY of the following :**

..... (18 Degrees, one degree each).

1. Pollination is defined as .....
2. Composite fruits develop from ..... such as ..... and .....
3. When stamens are united by their anthers and filaments, they are described as .....
4. Intine is characterized by ..... and .....
5. Systems of classification are ....., ..... and .....
6. Sexual system of Linnaeus is based on .....
7. Spiral arrangement is more ..... than whorled arrangement.
8. Wind pollinated flowers develop certain adaptation such as .....
9. Types of placentation are .....
10. Types of Racemose inflorescences are .....
11. The number of stamens of the family Nyctaginaceae ranges between ..... to .....
12. The number of stamens of the family Rosaceae ranges between ..... to .....
13. The placentation in the family Brassicaceae is ....., while in the family Malvaceae is .....
14. The placentation in the family Convolvulaceae is ....., while in the family Solanaceae is .....
15. The family ..... is characterized by the presence of epicalyx and an indefinite number of stamens.
16. The family ..... is characterized by the presence of gynobasic style and quadrangular stems.
17. The fruit in the family Geraniaceae is ....., while the family Caryophyllaceae is .....
18. The fruit in the family Nyctaginaceae is ....., while in the family Chenopodiaceae is .....
19. In the family Asteraceae, the calyx, which is usually absent or highly modified into hairs, bristles or scales, is known as .....
20. Leaves of the family Cyperaceae are arranged in ....., while in the family Poaceae are arranged in .....

**بقية الأسئلة على الصفحة التالية** ««««««««««

2-During DNA replication the daughter strand that is synthesized continuously is called....., and the strand that is synthesized discontinuously is known as .....

3-DNA has ..... charge due to the presence of .....

4-DNA back-bone consists of .....and.....

5- Translation Initiation complex in prokaryotes is formed of .....

6- RT- PCR means .....

7- A nucleotide of DNA is formed of ..... sugar, ..... and .....

8-..... bonds are responsible for linking the two strands of DNA together, whereas..... bonds link the nucleotides together on the same strand.

**Q3: Define Five only of the following scientific terms:** (5 Marks)

- |                     |               |                     |
|---------------------|---------------|---------------------|
| 1. Okazaki fragment | 2. Exons      | 3. Telomere         |
| 4. Transcription    | 5. Nucleosome | 6. RNA interference |

**Q4: Give the biological function for Nine only of the following:** (9 marks)

- |                         |            |             |
|-------------------------|------------|-------------|
| 1. Thermal cycler       | 2. SSBP    | 3. Histones |
| 4. Sigma factor protein | 5. Primer  | 6. RNase    |
| 7. Capping guanine      | 8. Primase | 9. Helicase |
| 10. DNA polymerase      |            |             |

**Q5: Give (*in table*) the differences between Three only of the following:** (9 Marks)

1. Plasmid & bacteriophage as vectors
2. Replication process in Eukaryotes and Prokaryotes
3. Gene structure in Eukaryotes and Prokaryotes
4. Z-DNA & B-DNA
5. Ribosome structure in Eukaryotes and Prokaryotes


**Q6: Write on Three only of the following:** (9 Marks)

1. DNA sequencing
2. Requirements of gene cloning
3. Southern blot
4. The characters of DNA polymerase III

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*Best wishes*

*D r. Nemmat A. Hussein & Dr. Naeima Yousef*

Assiut University Faculty of Science Botany & Microbiology Dept			جامعة أسيوط كلية العلوم قسم النبات والميكروبيولوجي
Molecular Biology (212B)	Final exam (26 May 2018)	Time: 2 hours	
Microbiology & Botany students		2 <sup>nd</sup> level	

**Answer the following questions: (50 Marks)**

**Q1: Choose the correct answer of the following: (10 Marks)**

- Which of the following does **NOT** need a primer in its function:
  - DNA polymerase II
  - RNA polymerase
  - DNA polymerase III
  - DNA polymerase  $\delta$
- Which of the following result is provided by Western Blot analysis:
  - DNA molecules
  - Protein molecules
  - Nucleotides
  - RNA molecules
- Restriction enzymes are:
  - used for joining DNA to cloning vector
  - cleave DNA randomly
  - cleave DNA at specific sites
  - digest DNA at the ends
- All of the following are used in PCR **EXCEPT**:
  - Taq polymerase
  - Restriction enzymes
  - Oligonucleotide primers
  - dNTPs
- Which of the following statements describe the organism with recombinant DNA:
  - White bacterial colonies susceptible to antibiotic
  - Blue bacterial colonies susceptible to antibiotic
  - White bacterial colonies resistant to antibiotic
  - Blue bacterial colonies resistant to antibiotic
- Which of the following types of RNAs translated into protein
  - tRNA
  - mRNA
  - rRNA
  - all of the above
- If the amount of G in a DNA sample is 20%, what is the amount of T in the sample:
  - 10%
  - 20%
  - 30%
  - 40%
- Which of the following techniques is used for detection of gene of interest:
  - Southern Blot
  - PCR
  - Western Blot
  - All of the above
- Place the following in the order that they occur during transcription initiation: 1. Binding of RNA polymerase, 2. Formation of transcription bubble, 3. Binding of TFIID, 4. Binding of TBP:
  - 4,3,2,1
  - 2,4,1,3
  - 3,2,1,4
  - 1,2,3,4
- Which of the following enzymes responsible for copying RNA template to DNA
  - DNA polymerase
  - RNA polymerase
  - Reverse transcriptase
  - RNA replicase

**Q2: Complete the following statements: (8 Marks)**

1- RNA polymerase recognizes the promoter region by its .....



6-Pseudoconidia are formed in chains in.....

a-Thamnidium b-Syncephalastrum c-Blakeslea d-Cunninghamella

7-Resting spore is formed in the female gametangium in.....

a) *Allomyces macrogynous* b) *Rhizophydium couchii*  
c) *Polyphagus euglenae* d) *Synchytrium endobioticum*

8-The spore wall and sporangial wall are fused in.....

a-Pseudoconidium b-Planospore c-Aplanospore d-True conidium

9-True fungal hyphae are developed in the family.....

a- Physodermataceae b-Olpidiaceae c-Blastocladiaceae d-Rhizidiaceae

**Question Two:-**

16 Marks

**Answer FOUR ONLY of the followings:-**

4 Marks each

A-What are the general characteristics of the Order: Blastocladales.

Explain with drawing the sexual life cycle in *Allomyces macrogynous*.

B- Explain with drawing the method of resting spores germination and the primary phase of cabbage roots infection which developed by *Plasmodiophora brassicae*.

C- Describe with drawing the various stages in the sexual reproduction of an interbiotic chytrid which you have studied.

D- How to differentiate with drawing between each two of the followings:-

- 1- *Sorosphaera* and *Sorodiscus*
- 2- Polycentric and monocentric chytrids
- 3- Zoospores in Plasmodiophoromycetes and primary zoospores in Oomycetes
- 4- Endo-operculate and exo-operculate zoosporangia

E- Describe with drawing the morphological characteristics and zygospore behaviours in *Mortierella* and *Phycomyces*.

انتهت الأسئلة  
Esam Ali

Good Luck - Prof. Dr. Esam Hosney Ali



(B) Classify order peronosporales, showing the basis of classification.

Explain the mode of nutrition in the members of this order.

Q6- Give an illustrated account of each of the following, giving examples :-

(A) Behaviour of zoopores in Saprolegniaceous fungi. Name the disease caused by any member of these fungi.

(B) Behaviour of sporangia in family peronosporaceae, giving reason. Name the disease caused by this family.

(C) Any two types of conidiomata.

"Good Luck"  
Prof. M. H. Elmagdy

### Section B (25 Marks)

Answer the following questions:-

Question One:

9 Marks

Choose the correct answer and write it in your notebook: 1 mark each

1-The rhizoids act primarily to spread the infection from cell to cell and are not responsible for food channel to the resting spore in.....

a-*Olpidium brassicae*

b-*Rhizophydium couchii*

c-*Physoderma maydis*

d-*Synchytrium endobioticum*

2-The sporangium in *Pilobolus* is.....

a- Acolumellate and cuticularized

b- Columellate and thin walled

b- Columellate and multispored

d- Acolumellate and thin walled

3-The sporangioles in *Thamnidium* are.....

a- Columellate and few-spored

b- Thin walled and few-spored

b- Columellate and few-spored

d- Thick walled and acolumellate

4-Suspensor appendages are filamentous (hairy) in.....

a-*Rhizopus*

b-*Phycomyces*

c-*Absidia*

d-*Zygorhynchus*


5-Rhizoids arise from the curvature side of the stolon in.....

a-*Rhizopus*

b-*Absidia*

c-*Mucor*

d-*Circinella*

Assuit University, Faculty of Science Botany & Microbiology Department		جامعة أسيوط - كلية العلوم قسم النبات والميكروبيولوجي
Second Term Exam.May, 2018. Systematic Mycology (1) - 262 B. Group One For Second Level students, Faculty of science		Exam. Date: 23/ 5/ 2018. Time allowed: 2 hours. الإمتحان في 3 صفحات

### Section (A) 25 Marks

Answer FIVE questions only of the following :- ( Five Marks for each )

Q1- Describe the asexual reproduction and mode of nutrition in *pythium*.

Name the fungus closely allied to *pythium*. Distinguish between them and name the disease caused by each of them.

Q2- Any fungus you are studied used in the study of sex hormones in fungi. With the help of labelled diagrams only describe the sexual life history of heterothallic species of this fungus.

Q3 - (A) write with drawing short notes on:

- 1- Various methods of zoospores discharge in Saprolegniaceous fungi.
- 2- Various types of thallospores.

(B) Classify class Oomycetes, showing the basis of classification and evolution of conidia as evolutionary trend exhibited by the different species of this class.

Q4 - Give reasons for each of the following:-

- a) Slime molds not classified with true fungi.
- b) *Leptomitius* is considered sewage fungus and not classified with order Saprolegniales.
- c) *Saprolegnia* is considered Dimorphic and Diplanetic fungus.
- d) Some fungi referred to as being imperfecti.
- e) Some fungi are considered holocarpic where as others are Eucarpic.

Q5- (A) Name and distinguish with drawing, giving examples, between various types of sexual fruit bodies formed in fungi producing ascospores.





Final Exam. For the 2<sup>nd</sup> level students

(Honor Microbiology and Chem.& Microbiol.), Group B - June 2018.

Subject: Systematic Mycology 1 (262 B)

Maximum Allowed Time: 135 Min.

Answer the Following Questions, and Illustrate your Answers Whenever Possible.

**Q.1: - Compare (The main only one difference is required; In Table) between:- 12 Marks)**

- |  |   |
|--|---|
| A- Saprolegniales and Leptomitales.      | B- <i>Pythium</i> and <i>Phytophthora</i> . |
| C- Gonapodiaceae and Monoblepharidaceae. | D- Cytogenes and Eu-Allomyces.              |
| E- Mucorales and Entomophthorales.       | F- Zygomycetes and Trichomycetes.           |

**Q.2: - Using a Labeled Diagram and a Brief Comment, show Four Only of the following:- (12 Marks)**

- A- The life cycle of an organism which is responsible for club root disease.
- B- Differentiation between *Phycomyces*, *Zygorynchus* and *Absidia*.
- C- Modes of Zoospores liberation of Chytridiomyceteous fungi.
- D- Distinction between three genera of slime molds.
- E- Distinction between three genera of downy mildews fungi.

**Q.3:- Write the scientific term or the name of organisms which are related to TEN ONLY of the following (Design a table for your answer):- (5 Marks)**

- A- A sexual hormone which attracts motile gametes.
- B- The repeated emergence of the secondary or principal zoospore in some fungal spp.
- C- The organism in which the primary zoospores encyst inside club-shaped zoosporangium, and the primary cysts are released by the disintegration of the sporangial wall.
- D- A fungal species which could be used as bioagent for nematode control.
- E- The sewage fungus at which the hyphae are constricted at regular intervals.
- F- The organism which is usually a soil-inhabitant causing root diseases of higher plants, primary zoospores encyst at the mouth of the sporangium and differs from *Achlya* in having delicate mycelium, and narrow sporangia forming a single row of zoospores.
- G- The diploid sexual spores which have space between oospore wall and oogonium wall.
- H- The non-nucleated vegetative structures which are produced by some chytrids.
- I- The organism (s) that comprises ubiquitous symbionts of higher plants which form vesicular-arbuscular mycorrhiza (endomycorrhiza).
- J- The self-fertile fungi which can produce sexual spores on a single thallus.
- K- The genus in which sporangiospores are arranged in a single row within the merosporangia.
- L- The organism which attacks house-flies causing fly cholera and is quite common during summer.
- M- Fungi which form anteriorly uniflagellate tinselate planospores.

**Q.4:- Discuss Briefly Four Only of the following:- (12 marks)**

- A- Plasmodiophoromycetes are neither true slime molds nor true fungi.
- B- Types of sporangia in Mucorales showing the evolutionary trend. Give examples.
- C- Classification of Peronosporales into different Families showing the main features for each.
- D- Taxonomic criteria which are used for species recognition of Saprolegniaceae fungi.
- E- Characters that set the Oomycota apart from true fungi.

**Q.5: Define Briefly NINE ONLY of the following and Give the name of the organisms or Fungal groups which are related to each:- (9 Marks)**

- Plerotic oospores- Erogen- Gemmae – Monocentric thallus – Holocarpic thallus- Rumen fungi –  
Prosorus – Paragynous antheridium- Monomorphism – Thallospores- Zoosporangial proliferation.

Good Luck

Prof. Abdel-Raouf M. Khallil