



Mineral Nutrition

Time: 2 hours

Exam papers: Two

First Term Examination 2017 – 2018

351 B

3rd Level: Botany

Answer the following questions:

Q1- Read carefully and choose the right answer of twenty only:.....(20 marks)

1- The matrix of primary cell wall consists of:

- a. hemicelluloses b. pectins c. proteins d. all of the previous

2- Proteins that serve as aquaporins are always:

- a. anchored b. peripheral c. integral d. all of the previous

3- Diffusion works a concentration gradient.

- a. down b. up c. all of the previous

4- is the diffusion of water across a membrane.

- a. Imbibition b. Diffusion c. Osmosis

5- A solution has less solute than the cell.

- a. hypertonic b. hypotonic c. isotonic

6- Stoma when its guard cells gain K^+ and water from surrounding cells.

- a. opens b. closes c. flaccid

7- improves the soil's physical condition.

- a. Sand b. Organic matter c. Clay d. Silt

8- Mineral nutrients are classified depending on:

- a. amount b. metabolic need c. function(s) d. mobility e. all of the previous

9- Nutrients that are important in energy storage or structural integrity group:

- a. one b. two c. three d. four

10- are tubular extensions of the plasma membrane.

- a. Hairs b. Plasmodesmata c. all of the previous

11- Ca^{2+} pump can be further characterized by

- a. electrogenic b. electroneutral c. all of the previous

12- serves as an electron donar to the Fe in nitrogenase enzyme

- a. NADPH+H b. $FADH_2$ c. NADH+H d. Ferredoxin

(انظر الخلف)

13- The reduction of APS occurs exclusively in the

- a. mitochondria b. plastids c. vacuole d. peroxisomes

14- The reaction that produces cysteine and acetate is catalyzed by

- a. ATP sulfurylase b. pyrophosphatase c. OAS thiol-lyase d. APS kinase

15- Phosphate is relatively unavailable to plant roots because

- a. low solubility b. sorption capacity in soil c. all of the previous

16- Mycorrhizae filaments provide plant roots with:

- a. surface area b. minerals c. water d. all of the previous

17- Phosphate in the soil solution is readily absorbed by

- a. H^+ - HPO_4^{2-} symporter b. H^+ - HPO_4^{2-} antiporter c. all of the previous

18- ATP synthesis takes place in..... except:

- a. mitochondria b. plastids c. oleosomes d. cytoplasm

19- form because of the attraction of a positively charged cation for a negatively charged group on a carbon compound.

- a. Electrostatic bonds b. Coordination bonds c. all of the previous

20- Several compounds secreted by roots form stable chelates with iron except

- a. malic acid b. citric acid c. sugars d. phenolics e. piscidic acid

21- Insertion of iron into the porphyrin is catalyzed by the enzyme

- a. ferrochelatase b. iron-chelating reductase c. all of the previous

22- consists of a protein shell with a core of 5400 to 6200 iron atoms

- a. Porphyrin b. Phytoferritin c. all of the previous

Q2- Write on five of the following:..... (15 marks)

1. Steward's scheme of metabolic reactions involved in the opening and closing of stomata
2. What makes an element essential?
3. Techniques are used in nutritional studies
4. Conversion of ammonium to amino acids
5. Assimilation of oxygen to organic compound
6. Assimilation of one of the cations

Q3- Compare between five of the following:..... (15 marks)

1. Channels and carriers
2. Contact and carbonic acid exchange theories
3. H^+ -Pyrophosphatase and ATP-binding cassette pumps
4. Symport and antiport transports
5. H^+ -ATPase and vacuolar H^+ -ATPase pumps
6. Nitrate reductase and nitrite reductase enzymes

والله ولي التوفيق, ,,,,,,,,,,,,,,, أ.د./ عفاف محمد حماده



Assiut University
Faculty of Science
Botany & Microbiology Department
1st Semester 2017-2018
9 - January - 2018

Final Exam: Third Level
Course Code: 393 B
Course Title: Microbial Toxins
Allowable Time: 2 hours
Total Degree: 50 Marks



Answer the following questions:

1) Describe briefly Only Four of the following (20 marks):

- a) The main types (classification) of bacterial toxins.
- b) The alternative mechanism of bacterial toxins entry and attachment.
- c) Anatoxins.
- d) Non-protein bacterial toxins effect.
- e) Control of toxic algae.

2) Explain the physical and chemical properties of Only Four of the following (20 marks):

- a) Stigmatocystin
- b) Kojic acid
- c) Citrinin
- d) Patulin
- e) Penicillic acid
- f) Zearalenone

3) Write on Only Two of the following (10 marks):

- a) Mode of action and physiological effect of Trichothecenes.
- b) Chemistry of aflatoxins.
- c) Causal agents of cholera, anthrax, and botulism.

Good Luck ☺

Dr. Khalid A. Hussein



First Semester final Examination
(Microbial toxins)

Subject: Course 393B

Students: (Microbiology; Chemistry and Microbiology sections)

General Instructions: -Answer the following questions.

Q1. Place a tick $\checkmark$ in the correct answer. (15 marks)

1. Which one of the following affects on the digestive system?
a. zearalenone b. ochratoxin A c. aflatoxin B₁ d. alternariol
2. Which one of the following represents the range of LD₅₀ (μg/Kg) of anatoxin-a?
a. 50-100 b. 20-50 c. 200-250 d. 50-150
3. Which one of the following is derived from amino acids?
a. sterigmatocystin b. patulin c. tenuazonic acid d. citrinin
4. What does the B sub unit in AB toxin stand for?
a. accumulation b. binding c. enzymatic activity d. adhesion
5. Which one of the following can produce DSP toxins?
a. *Oscillatoria* sp. b. *Dinophysis caudata* c. *Chlamydomonas* sp. d. *Nostoc* sp.
6. Which one of the following is required by large amount for inducing bacterial disease symptoms?
a. exotoxins b. H₂S c. polyamines d. endotoxins
7. Which one of the following is a property of lipopolysaccharides?
a. heat resistant b. highly potent c. secreted by living bacteria d. heat sensitive
8. What is the chemical nature of neurotoxins?
a. protein b. alkaloids c. carbohydrates d. fats
9. Which one of the following is related to difurocoumarolactone series?
a. afl. B₁ b. aflatoxicol c. afl. M₁ d. afl. G₁
10. Which one of the following is the main producer of patulin on apples?
a. *P. citrinum* b. *F. oxysporum* c. *P. expansum* d. *A. flavus*

Q2. Give the scientific term for each of the following: (5 marks)

1. Soluble substances that alter the normal metabolism of host cells with deleterious effects on the host.
(.....)
- 2- Detoxified toxins which retain their antigenicity and their immunizing capacity.
(.....)
- 3- The least permitted level of mycotoxin in foods and feeds.
(.....)
- 4- Certain fungal isolates have the ability to produce mycotoxins.
(.....)

Q3. Explain the mode of action of only three of the following: (10 marks)

1- Cholera toxin

2- Saxitoxin

3- Okadaic acid

4- Clyindropermopsin

Q4 (A). Give the toxic effects and natural occurrence of each of the following: (10 marks)

Microbial Toxin	Toxic effects	Natural occurrence
Citrinin		
Patulin		
Microcystins		

Q4 (B). Complete the missing data in the following Table. (10 marks).

Microbial Toxin	Producing microorganisms	Chemical structure
Aflatoxin G1		
Methyl mercaptan		
Zearalenone		

Good luck

Prof. Dr. Ahmed Lotfy El-Sayed

Answer all the following questions

(A) Write on only four of the following (20 marks): 5 marks for each one

- 1- The structure and chemical composition of cell wall
- 2- Shapes of chromosomes according to the position of centromere (by drawing)
- 3- The structure and function of Golgi apparatus
- 4- The ultrastructure of mitochondria inner membrane subunits
- 5- The structure and function of smooth endoplasmic reticulum

(B) Compare between only four of the following (20 marks): 5 marks for each one

- 1- Ribosomes of **Prokaryotic** and **Eukaryotic** cells
- 2- **Diplotene** and **Diakinesis**
- 3- **Chromoplasts** and **Leucoplasts**
- 4- Plasma membrane of **Bacterial** and **Archaeal** cells
- 5- **Anaphase** and **Telophase**

(C) Defined only five of the following (10 marks) : 4 for each one

- 1- Sat-chromosome
- 2- Chromonema
- 3- Grana
- 4- Cytogenetics
- 5- Karyotype
- 6- Nucleosome

Good luck

DR/ MAYSA M. A. ALI



3rd level (Microbiology & Botany Students)
Pathogenic Microorganisms (397B)

Final ex: 24th December 2017
Time allowed: 2 hours

Answer the following questions

(50 Marks)

I. Give a short account on only 4 of the following

(8 Marks)

1. Food poisoning
2. Preventing the spread of pathogens
3. Resident gut normal flora
4. Risk factors of Aspergillosis
5. How do pathogens leave the body of an infected person?

II. Give the reason(s) for only 5 of the following

(10 Marks)

1. Failure of bacteria to infect healthy body
2. Tuberculosis spreads no more than 1 meter
3. Fungal infections for human body are less than that caused by bacteria and virus
4. Increasing of body temperature following infection.
5. Stomach harbors small number of normal flora.
6. Bladder infection by *Escherichia coli* is much more frequently in woman than man

III. Give the difference between five of the following

(10 Marks)

1. Symptoms, Signs & Syndrome
2. Hepatitis A, B & C
3. Ochratoxins & Aflatoxins
4. Primary & Opportunistic pathogens
5. Endogenous & Exogenous pyrogens
6. Leucopenia & Leucocytosis

IV. Give one example for only ten of the following

(10 Marks)

1. The causal agent of bacterial meningitis
2. Endotoxin producing pathogen
3. The causal agent of typical pneumonia
4. A fungal disease contracted via the respiratory tract
5. Exogenous infections
6. A true fungal pathogen
7. Causal agent of Keratomycosis
8. A pathogen transmitted by contaminated water
9. A pathogen can infect the body through parenteral route
10. Diseases acquired via contaminated fomites
11. A disease transmitted by insects

----- انظر خلف الصفحة بقية الأسئلة -----

V. Choose the correct answer for only five of the following (5 Marks)

1. Lumbar puncture is required during the diagnosis of
 - a. Tinea
 - b. Pneumonia
 - c. Pyelonephritis
 - d. Meningitis
2. Which of the following diseases is not caused by A-B toxins
 - a. Cholera
 - b. Typhus
 - c. Botulism
 - d. all of the above
3. Incubation period for Hepatitis C virus
 - a. Two years
 - b. Few days
 - c. One day
 - d. Two months
4. Which of the following species is considered as zoophilic
 - a. *Epidermophyton floccosum*
 - b. *Microsporum canis*
 - c. *Microsporum gypseum*
 - d. None of the above
5. The infection site of kuru disease is
 - a. Brain
 - b. Skin
 - c. Lung
 - d. Kidney
6. *Cryptococcus neoformans* is characterized by
 - a. Causing cryptococcosis
 - b. Mannitol production
 - c. Forming capsule
 - d. all of the above
7. Toxoid is
 - a. Antitoxin
 - b. Toxemia
 - c. Antibiotic
 - d. Vaccine

VI. Give the scientific terms of only five of the following: (5 Marks)

1. A stage of infection with non-specific signs and symptoms
2. The antimicrobial agent that inhibit cell wall synthesis of susceptible fungi
3. A dense mass of fungal mycelium found in lung cavities
4. A prion disease in people suffering from famine.
5. The main portal of entry of Aspergillosis pathogens.
6. A glycoprotein that bridges junctions between cells

VII. Write the complete name of the only 4 of following abbreviations (2 Marks)

1. HIV
2. CSF
3. LD50
4. UTI
5. STD

Best Wishes

*Prof. Mady A. Ismail
Dr. Nemmat A Hussein*

University of Assuit
Faculty of Science
Department of Botany & Microbiology



Course : Advanced Virology
381 B
Exam: Final written Exam
Time : 2 hrs

Please Answer the following questions (50Marks)

[A] Put a scientific title under each term [10 M]

- 1- Potentiality of a substance to induce an immune response.
- 2- Capsomer which formed from a single polypeptide chain.
- 3- Family of animal virus containing influenza viruses.
- 4- Elongated antibody with mol.wt of 1.5×10^5 .
- 5- Elimination of infectious virus by specific immune defense mechanism.
- 6- Highest dilution of antiserum reacting with homologous antigen.

7- Trapping of antigens on antibodies coated grids.

8- The most economical test of the precipitin tests in liquids.

9- Proteins produced by body to overcome acute virus infection.

10- so small chemicals induce immune effect when coupled with suitable carrier.

[B] Explain [30 M]

1- Gastrointestinal tract helps as natural barrier (2 M)

a-

b-

2- Animal viruses may spread by several ways (5 M)

a-

b-

c-

d-

e-

3- Bird flu virus could evolve into an easily spreading form between people (3M)

4- Precipitation is a net result of reaction between antigen and its homologous antibodies. (3M)

5- Using of rabbits for antisera production is preferable (3M)

a-

b-

c-

6- Sources of animal virus naming (3M)

a-

b-

c-

7- ELISA technique is more useful than others (2M)

a-

b-

8- Methods to exclude fat droplets out of antisera

(2M)

a-

b-

9-Actions of interferons

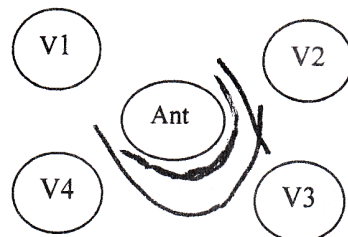
(3M)

a-

b-

c-

10-



(4M)

a-

b-

c-

d-

[C] Match the suitable meaning in column (A) with the scientific title in column (B) (10M)

(A)	(B)
1- A virus may be complicated with hepato -cellular carcinoma	[] Incomplete adjuvant
2- Monolayer homogenous host cells support propagation of viruses.	[] Hypoxia
3- Antibodies with spider shape	[] Spleen
4- Low level of O ₂ in blood	[] Spur
5- Storing antisera under drying and vacuum	[] Liver
6- Mineral paraffin + Mannide Monooleate	[] IgM
7- Injection in muscle	[] Cellular immunity
8- Elimination of virus infected cell	[] Tissue culture
9- A part of precipitation line indicating to close relationship	[] Intramuscular
10- Antibodies producing organ	[] HCV
	[] Complete adjuvant
	[] Lyophilization
	[] Humoral immunity
	[] IgG

Good luck



Final Examination



Phytogeography
Course No.: 341B

Time allowed: 2 hours

Department of Botany & Microbiology
50 Marks

First semester 2017/2018
3rd Level (Special Botany)

Answer the following questions:

Question 1:

8 x 1 = 8 Marks

- Write the scientific term for each of the following:-

- 1- The migration and adjustment of a species are not adequate to meet the changing conditions.
- 2- An organism which is tolerant of a wide range of conditions.
- 3- Distribution of an organism or a species over a particular area of the biosphere.
- 4- Adhesion of diaspores to the surface of the moving animal body.
- 5- The species is distributed all over the globe.
- 6- The distributional area of a species is broken up into small, more or less numerous and equal parts.
- 7- The distribution of a species is confined to a single restricted area or region and not extending beyond it.
- 8- The definite number of organisms which a habitat can potentially support it.

Question 2:

3 x 4 = 12 Marks

- Describe three only of the following:

- a) Vicarious areas.
- b) Warm deserts vegetation.
- c) Chaparral vegetation.
- d) Law of limiting factor.

Question 3:

3 x 4 = 12 Marks

- Compare between: (Answer three only)

- a) Center of abundance and center of variation.
- b) Pseudo-endemics and ecological endemics.
- c) Absolute relic and local relic.
- d) Savanna and Prairie grasslands.

Question 4:

3 x 6 = 18 Marks

- a) Why the population size of a species is low in a particular region.
- b) Discuss the principles of phytogeography concerning the plant responses.
- c) Account the factors that determine the number of seeds falling on a unit area of land

Good Luck

Prof. Dr. Taha Ramadan

	First semester Final exam. (2015-2016) Advanced Plant Anatomy (Code : 321 B) 3rd level students		
Botany and Microbiology Department	For Under Graduate students Date: 31/12/2017	Time allowed 2 hours	Assiut University

Answer the following questions 50 marks
Draw whenever it is possible

I. Write in details about four only of the following..... (4×4=16 marks)

1. Development of the stoma.
2. Differentiation of the Xylem vessels.
3. Development and types of Haplostele.
4. Types of normal secondary thickening in stems.
5. Anatomy of old dicot root of *Ficus benghalensis*.

II. Shortly explain eight only of the following (8×3=24 marks)

1. Anatomy of *Helianthus annuus* stem.
2. Calcium crystals in the plant cells.
3. Different procambium activities.
4. Branch and leaf gabs and traces.
5. Stem endodermis.
6. Anomalous secondary growth in *Leptadenia*.
7. Vascular bundles.
8. (A) Tylosis (B) Annual rings.
9. Tunica-Carpus theory

III. Compare between five only of the following (5×2=10 marks)

1. Anticlinal and periclinal planes of division.
2. Parenchyma and collenchyma.
3. Hydathodes and stomata.
4. Sap wood and heart wood.
5. Hypostomatic and epistomatic leaves.
6. Paracytic and Diacytic staomata

Best wishes

Prof. Dr. Fawzy M. Salama

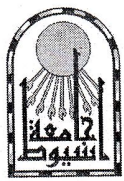
Professor of Plant Ecology

Botany and Microbiology Department

د. فوزي م. سلامة

Dr. Ahmed Amro

Lecturer in Botany and Microbiology Department

 Botany and Microbiology Department	First semester Final exam. (2017-2018) Medicinal Plants (Code : 333 B) For Under Graduate students (3rd level) Date: 3/1/2018	 Assiut University
	Time allowed 2 hours	

Answer the following questions 50 marks

I. Describe in details two only of the following..... (2×15 = 30 marks)

1. Advantages and disadvantages of medicinal plants cultivation and collection.
2. Classification of volatile oils according to their chemical composition and medicinal importance.
3. Egyptian flora include many medically important genera; give an example from Families Apiaceae, Asteraceae, Papaveraceae with their Scientific name, used organs, Chemical constituents, Commercial names and Folkloric uses.

II. Shortly explain Five only of the following (5×4 = 20 marks)

1. Role of four Muslim medical scientists in identification and classification of medicinal plants.
2. Effect of Light, Latitude, Age of plant and time of collection on the medicinal constituents.
3. Medicinal and commercial uses of Starch derivatives.
4. Tabulate your studied alkaloids within their productive taxa
5. Plant gums extracted from two genera, name them and give uses.
6. Tabulate the single Ca-oxalate crystals with their accumulative taxa.

Best wishes

Prof. Dr. Fawzy M. Salama

Professor of Plant Ecology

Botany and Microbiology Department

د. فوزي م. سلامة
٢٠١٧ / ١٠ / ١٤

Dr. Ahmed Amro

Lecturer in Botany and Microbiology Department



Assiut University
Level Three
11-1-2018
Two Hours



Faculty of Science
1st Term
No. 363 B
50 Marks



Botany & Microbiology Department
Microbiology and Chemistry & Microbiology
Physiology of Fungi
Final Examination

IV. Select and complete correct sentences from the following columns [5 marks].

A	B	C	D
1] Saprophytic fungi	are moved cultures and named agitated	Friendly with the environment	<i>Saccharomyces cerevisiae</i> which produced ethanol
2] Synthesize the essential metabolites for completed the life of the other fungus	it have homogeneity in nutrient, O ₂ or aeration and waste products	Metabiosis is the relationship between	these relation is named synthesize for another
3] It remove and clean the environment	in industrial production of the vinegar	are live in mixed culture of	Give one form of fungal growth
4] Submerged cultures	It derived their nutrient from dead organic matter	<i>Acetobacter acetii</i> is used it for	<i>Melanospora pampeana</i> and <i>Fusarium moniliforme</i>

V. Select the most correct answer in the FIVE ONLY FROM THE following [2.5 marks]:-

- When study the fungi must be study
 - Sterilization methods
 - types of media
 - methods of fungal cultivations
 - measuring the fungal growth
 - Culture preservation
 - all the flowered points
- The differences in fungal cell walls are wide and depend up on the fungal
 - groups
 - parts
 - genus & species
 - genetic structure
 - nutritional factors
 - environmental factors
 - all the flowered points
- Light and radiations are important in the life of filed fungi and affected on
 - Mycelial growth
 - fungal spores
 - fruiting bodies
 - Colony colour
 - Zonation
 - all the flowered points
- The fungus can completed their life cycle by
 - adaptations
 - enzyme excretions
 - nutrient uptake
 - 1^{ry} metabolisme. 2^{ry} metabolism
 - re-cycle their life by production of spores
 - all the flowered points
- We can measure the presense fungi by determination of specific metabolites such as.....
 - β. glucan
 - ergosterol
 - volatiles metabolites
 - immunological techniques
 - all the flowered
- In nature the saprophytic fungi lives on the dead organic matters which act as a source of ...
 - N₂
 - P
 - all macroelements & microelements
 - C
 - O₂
 - all the flowered

VI. Answer with (✓) or (X) and correct the (false) statements in FIVE ONLY FROM THE following (2.5 marks):-

- Lipids and melanin pigments are act as protective layers in young fungal cell walls ().
- Fungi lives in cold regions named mesophilic ().
- Fungi have the same structure of the higher plant cell and similar with the animals in the mode of nutrition's ().
- All the fungi can live as alkaliphilic ().
- The fungicides killed the fungus by affecting on the fungal cell walls only ().
- The nutrition requirements of fungi depend up on the co-factors only ().

Good Luck & Best Wishes
Professor: Eman Mostafa Mohamed



Assiut University
Level Three
11-1-2018
Two Hours



Faculty of Science
1st Term
No. 363 B
50 Marks



Botany & Microbiology Department
Microbiology and Chemistry & Microbiology
Physiology of Fungi
Final Examination

I. Identify the following figures and complete the missed numbers [15 marks]:-

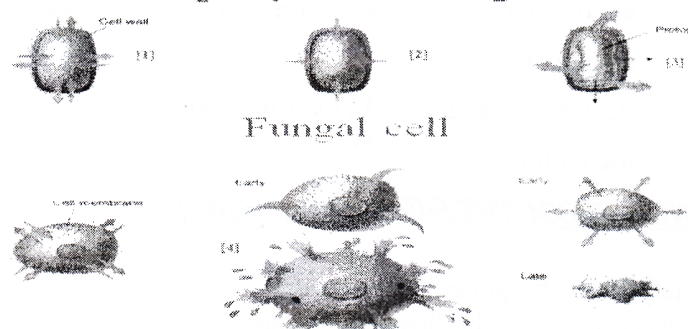
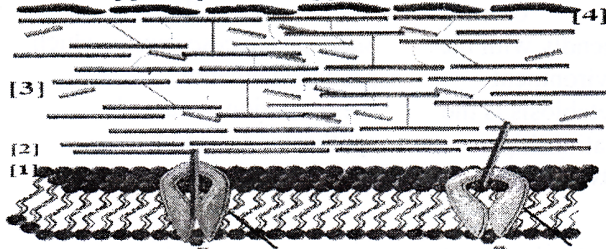


Fig.1:
Their functions.....,.....
.....and.....

1.
2.
3.
4.

Fig.2:.....

1.
2.
3.
4.

Identify the kinds of each solutions

.....

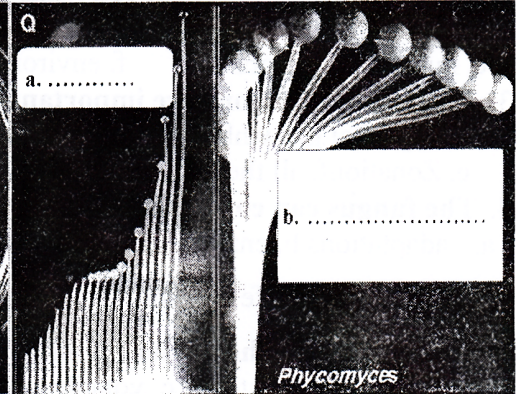
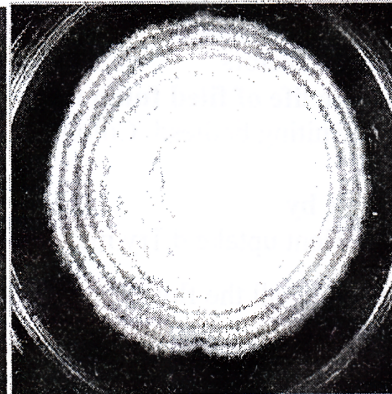
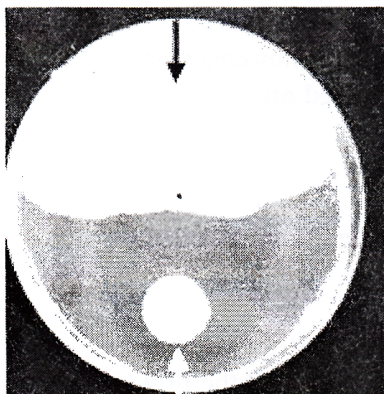


Fig.3..... Fig.4..... Fig.5a.....
Showing the factors affecting on the fungal growth in each figure and explain the phenomena.

II. Compare between the FIVE ONLY from the following [10 marks]:-

1. Fungus uptake of the (Na^+ & K^+ ; glucose and gases " O_2 & CO_2 ") (in table).
2. Stationary or straight linear phase in yeast and aspergilli.
3. Kind of polysaccharides found in oomycetes and ascomycetes cell walls.
4. Potassium and Zinc in fungal nutrition.
5. Function of the fungal mitochondria and cytoplasm.
6. Function of the fungal 1ry metabolism and 2ry metabolism.

III. In table count only and summarized the environmental factors affecting on the fungal growth and clearing how each factor divided the fungi into different categories [15 marks].

The Remain Questions Are Found In The Next Page

10. The chromatography used when different substances have very similar R_f values.
11. The advantage of TLC in compared to PC, it and
12. Applications of immunoassay, and
13. The reason for covering the container in paper chromatography is
14. Chromatography is physical method of separation of component between two phases and
15. A bonded phase is
16. Retention time is

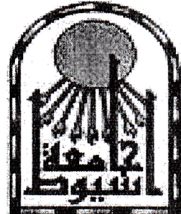
Third Question: Write in details about (only six) of the following:-

(24 mark)

1. Paper chromatography using a non-polar and polar solvent.
2. Factors affecting column efficiency.
3. Types of centrifuge rotors.
4. Ion exchange chromatography and molecular exclusion chromatography.
5. Single and double beam spectrophotometers.
6. Adsorption chromatography and partition chromatography.
7. Density gradient centrifugation.

Good luck

Dr/ Eman Aldaby

Assiut University Faculty of Science Botany and Microbiology Department	Final Exam for Soil microbiology B491 2018 Time: 2 hours	
---	--	---

Answer the following questions

(50 Marks)

1- Discuss each of the following:

(15 Marks)

- A. The biochemistry of phosphate solubilization.
- B. Biodegradation of starch by soil microorganisms.
- C. Decomposition of keratins by microorganisms with special reference to enzymatic activities and their prospective applications.

2- Explain two only of the following:

(10 Marks)

- A. Sulphur cycle in soil.
- B. Microbiology and biochemistry of hemicellulose and lignin decomposition in soil.
- C. Assimilation of nitrogen by microorganisms.

3- Discuss the biochemistry of biogas production from waste materials by microorganisms.

(10Marks)

4- Write on two only of the following:

(15Marks)

- A. The role of microorganisms as biocontrol agent.
- B. The biochemistry and microbiology of chitin degradation.
- C. The enzymatic activities of *Trichoderma viride* for cellulose degradation.

Good luck

Prof. Dr. Magdy M. Bagy

Faculty of Science Botany and Microbiology Dept. Biotechnical Analysis (B453) Course: Time: 2 hours Marks:50 marks		كلية العلوم قسم النبات والميكروبيولوجي 2017/2018 Level: Fourth
--	---	---

Answer the following questions

First Question: write the definition of the following :- (11 marks).

- | | |
|----------------------------------|------------------------|
| 1- Buffer capacity | 2- Gradient elution |
| 2- 3- Detection Antibody | 4- Chromatogram |
| 3- 5- Microtiter Plate | 6- Isocratic elution |
| 4- 7- Beer-Lambert law | 8- Absorption cells |
| 9- The eluate | 10- Immunonephelometry |
| 11- Radioimmunoassay immunoassay | |

Second Question: Complete (only 15) the following sentences:-

(15 mark)

1.buffer suitable for gel permeation and anion-exchange chromatography.
2. $RCF =$
3. Factors affecting buffer pH are..... and
4. Centrifuge Components are.....,....., and
5. Colorimetry is
6. is type of cell lysis by chopping action.
7. Chromatography, literally.....was first employed by Russian scientist Mikhail Tsvet in 1900.
8. HPLC, a provides the higher pressure required to move the mobile phase and sample.
9. There are two types of atomic spectrometers.....and.....

a. Please Turn Over

10. The chromatography used when different substances have very similar R_f values.
11. The advantage of TLC in compared to PC, it and
12. Applications of immunoassay, and
13. The reason for covering the container in paper chromatography is
14. Chromatography is physical method of separation of component between two phases and
15. A bonded phase is
16. Retention time is

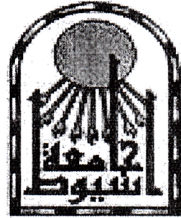
Third Question: Write in details about (only six) of the following:-

(24 mark)

1. Paper chromatography using a non-polar and polar solvent.
2. Factors affecting column efficiency.
3. Types of centrifuge rotors.
4. Ion exchange chromatography and molecular exclusion chromatography.
5. Single and double beam spectrophotometers.
6. Adsorption chromatography and partition chromatography.
7. Density gradient centrifugation.

Good luck

Dr/ Eman Aldaby

Assiut University Faculty of Science Botany and Microbiology Department	Final Exam for Soil microbiology B491 2018 Time: 2 hours	
--	---	---

Answer the following questions

(50 Marks)

1- Discuss each of the following:

(15 Marks)

- A. The biochemistry of phosphate solubilization.
- B. Biodegradation of starch by soil microorganisms.
- C. Decomposition of keratins by microorganisms with special reference to enzymatic activities and their prospective applications.

2- Explain two only of the following:

(10 Marks)

- A. Sulphur cycle in soil.
- B. Microbiology and biochemistry of hemicellulose and lignin decomposition in soil.
- C. Assimilation of nitrogen by microorganisms.

3- Discuss the biochemistry of biogas production from waste materials by microorganisms.

(10Marks)

4- Write on two only of the following:

(15Marks)

- A. The role of microorganisms as biocontrol agent.
- B. The biochemistry and microbiology of chitin degradation.
- C. The enzymatic activities of *Trichoderma viride* for cellulose degradation.

Good luck

Prof. Dr. Magdy M. Bagy

Assiut University – Faculty of Science
Department of Botany & Microbiology
Date: Friday December, 22, 2017

Course: Biological Control (499 B)
Level: 4th Microbiology
Time: Two hours (9 – 11 am)

=====

Answer **FIVE** questions only: (Total marks=50)

=====

1. Discuss the role of the following microbes in bio-control of plant pathogens. :..... (10 Marks)
 - a) *Bacillus subtilis*
 - b) *Pseudomonas aeruginosa*
2. Give drawings for the following fungi mentioning their importance in protecting plants against fungal pathogens. (10 Marks)
 - a) *Cheatomium globosum*
 - b) *Epicoccum nigrum*
3. Using suitable diagrams describe the different ways by which *Trichoderma* spp. and Vesicular Arbuscular Mycorrhizae (VAM) compete pathogens and induce systemic resistance in plants. (10 Marks)
4. Describe with drawings the life cycles of *Entomophthora* and *Coelomomyces* mentioning their role in the bio-control of insect pests. (10 Marks)
5. Discuss how nematodes are trapped by predaceous fungi..... (10 Marks)
6. Give full illustrations for each of the following: (10 Marks)
 - a) Nematodes attacked by *Catenaria anguillulae*
 - b) Insect larvae infected and killed by *Bacillus thuringiensis*

Best Wishes,
A. M. Moharram

Faculty of Science Botany and Microbiology Dept. Biotechnical Analysis (B453) Course: Time: 2 hours Marks:50 marks		كلية العلوم قسم النبات والميكروبيولوجي 2017/2018 Level: Fourth
--	---	---

Answer the following questions

First Question: write the definition of the following :- (11 marks).

- | | |
|----------------------------------|------------------------|
| 1- Buffer capacity | 2- Gradient elution |
| 2- 3- Detection Antibody | 4- Chromatogram |
| 3- 5- Microtiter Plate | 6- Isocratic elution |
| 4- 7- Beer-Lambert law | 8- Absorption cells |
| 9- The eluate | 10- Immunonephelometry |
| 11- Radioimmunoassay immunoassay | |

Second Question: Complete (only 15) the following sentences:-

(15 mark)

1.buffer suitable for gel permeation and anion-exchange chromatography.
2. $RCF =$
3. Factors affecting buffer pH are..... and
4. Centrifuge Components are.....,....., and
5. Colorimetry is
6. is type of cell lysis by chopping action.
7. Chromatography, literally.....was first employed by Russian scientist Mikhail Tsvet in 1900.
8. HPLC, a provides the higher pressure required to move the mobile phase and sample.
9. There are two types of atomic spectrometers.....and.....

a. Please Turn Over

10. The chromatography used when different substances have very similar R_f values.
11. The advantage of TLC in compared to PC, it and
12. Applications of immunoassay, and
13. The reason for covering the container in paper chromatography is
14. Chromatography is physical method of separation of component between two phases and
15. A bonded phase is
16. Retention time is

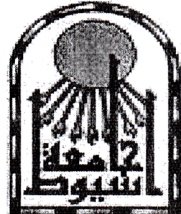
Third Question: Write in details about (only six) of the following:-

(24 mark)

1. Paper chromatography using a non-polar and polar solvent.
2. Factors affecting column efficiency.
3. Types of centrifuge rotors.
4. Ion exchange chromatography and molecular exclusion chromatography.
5. Single and double beam spectrophotometers.
6. Adsorption chromatography and partition chromatography.
7. Density gradient centrifugation.

Good luck

Dr/ Eman Aldaby

Assiut University Faculty of Science Botany and Microbiology Department	Final Exam for Soil microbiology B491 2018 Time: 2 hours	
---	--	---

Answer the following questions

(50 Marks)

1- Discuss each of the following:

(15 Marks)

- A. The biochemistry of phosphate solubilization.
- B. Biodegradation of starch by soil microorganisms.
- C. Decomposition of keratins by microorganisms with special reference to enzymatic activities and their prospective applications.

2- Explain two only of the following:

(10 Marks)

- A. Sulphur cycle in soil.
- B. Microbiology and biochemistry of hemicellulose and lignin decomposition in soil.
- C. Assimilation of nitrogen by microorganisms.

3- Discuss the biochemistry of biogas production from waste materials by microorganisms.

(10Marks)

4- Write on two only of the following:

(15Marks)

- A. The role of microorganisms as biocontrol agent.
- B. The biochemistry and microbiology of chitin degradation.
- C. The enzymatic activities of *Trichoderma viride* for cellulose degradation.

Good luck

Prof. Dr. Magdy M. Bagy

Assiut University
Faculty of Science, Botany and Microbiology Department
First Term Examination: 2017 – 2018
Fourth Level : Special Botany Subject : Stress Physiology
(451B) Time Allowed: 2 hours

=====

i - What is water deficit and drought resistance in xerophyte and mesophyte plants . (10 marks) .

ii- Give an account of salt stress and salt resistance in higher plants . (10 marks)

iii- Choose and write the correct answer in your paper of at least 20 questions . (30 marks)

1. External symptoms of chilling injury to plants are,
(a) reduced growth (b) chlorosis and lesions on leaves
(c) appearance of foliage as if soaked in water for long
(d) all of above
2. Which of the following are more susceptible to chilling injury?
(a) Tropical plants (b) Subtropical plants
(c) Both tropical and subtropical plants (d) Temperate zone plants
3. Chilling injury in plants results due to,
(a) low temperature well above their freezing point
(b) low temperature at freezing point
(c) low temperature below the freezing point
(d) none of the above
4. Which of the following is a chill-tolerant plant?
(a) Coleus (b) Dieffenbachia (c) Croton (d) Arabidopsis
5. Lipid bilayers of cell membranes in chill-resistant species have,
(a) higher proportion of saturated fatty acids
(b) higher proportion of unsaturated fatty acids
(c) equal proportion of saturated & unsaturated fatty acids
(d) only saturated fatty acids
6. In freezing injury to plants, ice nucleation means,
(a) formation of ice under the influence of nucleus

- (b) formation of ice in nucleus
 - (c) formation of ice crystals around large polysaccharides and proteins in cell
 - (d) none of the above
7. In freezing or frost injury to plants, ice formation begins,
- (a) exactly at freezing point
 - (b) at several degrees below its freezing point
 - (c) at slightly above the freezing point
 - (d) all of above
8. Which of the following are most susceptible to frost injury?
- (a) Tropical plants
 - (b) Subtropical plants
 - (c) Temperate zone plants
 - (d) All of above
9. Which of the following hormones is involved in drought and frost resistance 'of p
- (a) ABA
 - (b) IAA
 - (c) Ethylene
 - (d) None of the
10. Which of the following is lethal to plant tissues?
- (a) Formation of ice in intercellular spaces
 - (b) Formation of ice in xylem vessels
 - (c) Formation of ice intracellularly
 - (d) None of the, above
11. Which of the following does not have cryoprotective function in plant tissues?
- (a) Antifreeze proteins
 - (b) Sugars such as sucrose
 - (c) Saturated fatty acids.
 - (d) None of the above
12. Which of the following is most susceptible to heat-stress ?
- (a) Rubisco
 - (b) Photosystem 11
 - (c) Respiration
 - (d) None of the above
13. Relatively higher proportion of saturated fatty acids in membrane lipids is, characteristic of
- (a) high temp. sensitive plants
 - (b) high temp. tolerant plants
 - (c) C3 plants
 - (d) All of above
14. Which of the following are heavy-metals ?
- (a) Lead and cadmium
 - (b) Mercury and chromium
 - (c) Nickel, zinc and copper
 - (d) all of above
15. Increased heavy-metal concentration in the environment is mainly,
- (a) natural
 - (b) anthropogenic
 - (c) due to activities of microorganisms
 - (d) none of above

16. Heavy-metal toxicity in plants causes,
(a) increased lipid peroxidation in membrane
(b) DNA damage
(c) oxidation of sulphydryl groups of proteins
(d) all of above
17. Accumulation of phytochelatin in plant cell vacuoles is indicative of,
(a) salt stress (b) heavy-metal stress
(c) heat stress (d) all of above
18. Biotic stress in plants is caused by
(a) herbivore insects (b) fungal & bacterial pathogens
(c) plant nematodes (d) all of these
19. Phytoalexins which have antimicrobial activity are,
(a) secondary metabolites (b) synthetic compounds
(c) plant hormones (d) none of these
20. Hypersensitive response (HR) in plants is preceded by,
(a) Oxidative burst (b) accumulation of NO
(c) both (a) & (b) (d) none of these
- 21.- avr genes are carried by,
(a) host plant (b) pathogen
(c) both (a) & (b) (d) none of these
22. Elicitors originate usually from,
(a) cell walls of pathogen (b) phytoalexins
(c) plasmamembrane of plant cell (d) none of these