Assiut University
Faculty of Science
Department of Botany and Microbiology

Course: Biological control (B-499)
Time: Two hours
Date: January, 16, 2015

Answer FOUR Questions only:

1- **Discuss the role of the following microbes in protecting plants against fungal diseases**:

a. *Bacillus subtilis*
b. *Pseudomonas fluorescens*
c. *Trichoderma harzianum*
d. *Coniothyrium minitans*

2- **Describe with diagrams each of the following:**

a. Mechanisms by which fungi attack insects
b. Life cycle of *Entomophthora muscae*

3- **Discuss the role of the following fungi in nematode controlling**;

a. *Catenaria anguillulae*
b- *Bacillus thuringiensis*

4- **Describe with labeled drawings the microscopic appearance of:**

a- *Beauveria bassiana*
b- *Smittium culisetae*
c- *Lecanicillium longisporum*
d- *Paecilomyces lilacinus*
e- *Erynia neoaphidis*

5- **Nematode trapping fungi are provided with special structures to capture and penetrate their hosts.** Give examples and illustrations for these fungi

Best wishes,

Professor Dr. Ahmad M. Moharram

(١)

Faculty of Science Botany and Microbiology Dept.		كليه العلوم قسم النبات
Biotechnical Analysis (B 453) Course: Time: 2 hours Marks: 50 marks		First Semester 2014/2015 Level: Fourth

Answer the following questions

First question: (15 marks)

A- Define only five of the following terms:- (5 marks, one mark for each)

1- ELIZA

2- Planar chromatography

3- Bonded phase

4- Standard solution

5- Chromatogram

6- Eluate

(B)- Describe the main differences between only two of the following:-

(10 marks, 5 marks for each)

1. Rate-Zonal and Isopycnic Density-Gradient centrifugation
2. Packed and Capillary columns used in gas chromatography.
3. Fluorescent and Radio immunoassays.

Second Question: (15 marks)

Discuss the theory of only three of the following:- (5 marks for each)

1. Atomic Spectroscopy
2. Centrifugation
3. Immunoassays
4. Chromatographic separation

Third Question: (15 marks)

Write in details about only three of the following:- (5 marks for each)

1. Atomic absorption flame photometer.
2. Single beam spectrophotometer.
3. Effect of mobile phase compositing on chromatographic resolution in HPLC
4. Stationary and mobile phases in paper chromatography

Fourth question: **Choose the correct answer:** **(5 marks, half for each)**

1)	**In combined electrode pH meters, the electrode should be stored immersed in**		
	(a) Concentrated electrolyte	(b) Acidified deionised water	(c) Acidified tap water
2)	**Beer-Lambert law applicable for the standard curve when it is**		
	(a) Non-linear	(b) Linear	(c) All cases
3)	**The solution temperature is highly effective in the pH value of**		
	(a) Carboxylic acid buffers	(b) Amine buffers	(c) Both of them
4)	**In case of UV Spectrometers, the cuvettes must made of**		
	(a) Plastic	(b) Glass	(c) Optical grade quartz
5)	**The stationary phase in gas chromatography is a microscopic layer of .....inside the column**		
	(a) Liquid	(b) Gas	(c) a or b
6)	**UV/Vis spectroscopic data could be obtained from**		
	(a) Colorimetry	(b) Chromatography	(c) Both of them
7)	**By decreasing the flow rate in HPLC the retention time will**		
	(a) Increase	(b) Decrease	(c) Has no effect
8)	**The most efficient rotors for sample pelleting are**		
	(a) In swinging bucket rotors	(b) Vertical rotors	(c) Fixed-angle rotors
9)	**The immunoassays that depends on measuring the light emissions known as**		
	(a) Immunonephelometry	(b) Chemiluminescent	(c) Immunoprecipitation
10)	**Enzyme digestion is the most appropriate method for cell disruption of**		
	(a) Gram positive bacteria	(b) Gram negative bacteria	(c) Red blood cell
11)	**In gas chromatography, the choice of carrier gas depends mainly upon the type of the**		
	(a) Detector	(b) Analyte	(c) Stationary phase

Best Wishes

Dr. Manal El-Zohri

(١)

Faculty of Science Botany and Microbiology Dept.		كليه العلوم قسم النبات
Biotechnical Analysis (B 453) Course: Time: 2 hours Marks: 50 marks		First Semester 2014/2015 Level: Fourth

Answer the following questions

First question: (15 marks)

A- Define only five of the following terms:- (5 marks, one mark for each)

1- ELIZA

2- Planar chromatography

3- Bonded phase

4- Standard solution

5- Chromatogram

6- Eluate

(B)- Describe the main differences between only two of the following:-

(10 marks, 5 marks for each)

1. Rate-Zonal and Isopycnic Density-Gradient centrifugation
2. Packed and Capillary columns used in gas chromatography.
3. Fluorescent and Radio immunoassays.

Second Question: (15 marks)

Discuss the theory of only three of the following:- (5 marks for each)

1. Atomic Spectroscopy
2. Centrifugation
3. Immunoassays
4. Chromatographic separation

Third Question: (15 marks)

Write in details about only three of the following:- (5 marks for each)

1. Atomic absorption flame photometer.
2. Single beam spectrophotometer.
3. Effect of mobile phase compositing on chromatographic resolution in HPLC
4. Stationary and mobile phases in paper chromatography

Botany and Microbiology Department
Faculty of Science
Assiut University

Course title and code:
Soil Microbiology B491
Exam: Final Exam
Date: 2015
Time : 2 hours

Answer Five Questions only : **(50 Marks)**

1-Write on biogas production by microorganisms from agro-industrial wastes . (10 Marks)

2- How agro-industrial wastes are degraded by microorganisms in soil ? (10 Marks)

3- Write on cellulose and hemicellulose decomposition in soil. What are the enzymes involved in the two processes. (10 Marks)

4- Write on microbiology of lignin, pectin and chitin decomposition in soil . (10 Marks)

5- Discuss the following : (10 Marks)
a- Assimilation of nitrogen by microorganisms.
b- Phosphorus cycle in soil.

6-Write on the following : (10 Marks)
a- Decomposition of starch by microorganisms.
b- Sulphur cycle in soil.

good luck

Prof. Magdy M.K.Bagy