


<p>Faculty of Science Botany and Microbiology Dept. Biotechnical Analysis (B453) Course: Time: 2 hours Marks: 50 marks</p>		<p>كلية العلوم قسم النبات والميكروبيولوجي First Semester 2016/2017 Level: Fourth</p>
--	---	--

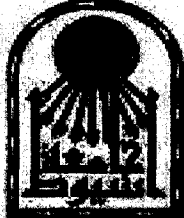
**Answer the following questions**

**First Question: Complete the following sentences:-**

**(10 marks)**

- a. An immobilized phase is.....
- b. .... is type of cell lysis by using high pressure sound waves.
- c. A chromatogram is.....
- d. HPLC, a ..... provides the higher pressure required to move the mobile phase and sample.
- e. Two ways paper chromatography used for separating the substances which have .....
- f. The chromatographic process occurs due to differences .....of the individual sample components.
- g. In the visible region, cuvettes of ..... are sufficient; however, in absorbs light below 350 nm must be used .....for these wavelengths.
- h. Buffer capacity is .....
- i. .... is the characteristic time it takes for a particular analyte to pass from the column to the detector under set conditions.
- j. Chromatography, literally ".....", was first employed by Russian scientist Mikhail Tsvet in 1900.

**Please Turn Over**

<p style="text-align: center;"><b>Assiut University</b>  <b>Faculty of Science</b>  <b>Botany and Microbiology</b>  <b>Department</b></p>	<p style="text-align: center;"><b>Final Exam for</b>  <b>Soil Microbiology</b>  <b>B491</b>  <b>2017</b></p> <p style="text-align: center;"><b>Time: 2 hours</b></p>	
---	--	---

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

**1- Discuss two only of the following: (12 Marks)**

- a. Assimilation of nitrogen by microorganisms.
- b. Decomposition of chitin by microorganisms.
- c. The role of microorganisms as biocontrol agent.

**2- Write on two only of the following: (12 Marks)**

- a. Microbiology of cellulose decomposition in soil.
- b. Decomposition of starch by microorganisms.
- c. Microbial keratinases and their applications.

**3- Write on biogas production by microorganisms from agro-industrial wastes. (14 Marks)**

**4- Explain two only of the following: (12 Marks)**

- a. Sulphur cycle in soil.
- b. Decomposition of lignin by microorganisms.
- c. Phosphorus mineralization and solubilization in soil.

**Good luck**

*Prof. Dr. Magdy M. Bagy*



---

Answer THREE questions of the following including QUESTION NO.-1

---

1- Describe with labeled drawings each of the following: .... (20 Marks)

- a- Life cycle of *Entomophthora muscae*.
- b- Two species of endoparasitic fungi of nematodes
- c- Mode of action of *Bacillus thuringiensis* attacking caterpillars.

2- Discuss the role of the following bacteria in biocontrol of plant diseases with special reference to their active metabolites and target hosts..... (15 Marks)

- a- *Pseudomonas fluorescens*
- b- *Bacillus amyloliquifaciens*
- c- *Bacillus subtilis*

3- Give suitable drawings for the following fungi, and then mention their efficacy in protection of plants against fungal diseases.. (15 Marks)

- a- *Trichoderma harzianum*
- b- *Ampelomyces quisqualis*
- c- *Chaetomium globosum*

4- Discuss the different ways by which the following organisms attack and destroy their natural enemies..... (15 Marks)

- a- *Coelomomyces stegomyiae*
- b- *Paecilomyces lilacinus*
- c- Fungi that capture and kill nematodes

===== End of Questions =====

Best wishes,,,,,,,,, Professor Ahmad M Moharram

**Second Question: Compare in table between only five of the following:-**

**(4 marks for each)**

1. Different types of immunoassay.
2. Single and double beam spectrophotometers.
3. Fixed angle and swinging-bucket rotor.
4. Spectrophotometers and colorimeters.
5. Four types of Liquid Chromatography.
6. High-pressure liquid chromatography and Gas chromatography.

**Third Question: Write in details about only five of the following:-**

**(4 marks for each)**

- a) Elution techniques.
- b) Atomic spectrophotometer.
- c) Immunoassay kit components.
- d) Applications of Immunoassay.
- e) Types of Centrifugal Separations.
- f) Classification of chromatography according to the packing of the stationary phase and mobile phase.

Good luck

*Dr/ Eman Aldaby*