



Tanta University, Faculty of Science, Department of Botany

Examination for Professional Microbiology Diploma



Course title:

Microbial Food Technology

Coursecode: PMB05109

Date 1 Mars., 2021

Term: 1st

Total assessment marks: 60

Time allowed: 2 hours

Answer the following questions:

First question:

A) Choose the correct answer from the following and rewrite it in your notebook

(5 Marks)

- 1- Immobilized enzymes are: a) Sweeteners b) Facilitate enzyme recycling c) Nutritional supplements
- 2- Injured pathogens in foods exhibit: a) A method for studying foodborne pathogens
b)- Enhancement of virulence in foods c) Non challenge for food microbiology
- 3- Propionic acid: a) Low calorie product b) Enzyme c) Food preservative
- 4- Monellin is: a) Flavor b) Low calorie product c) Amino acid
- 5- Monoclonal antibodies used in: a) Non microbial compounds of food b) Disease causing microbe c) a & b

B) Write on:

(10 Marks)

- 1- Role of the future microbial technology in: a) The conversion of waste materials into new value-added products.
- 2- Low calorie foods.

Second question : Discuss the following in brief: (15Marks)

- 1-Role of fermentation to food
- 2- Past and future of food microbiology
- 3-The relation between Lactic acid bacteria, food fermentations and health benefits

Third question :Write on:

(15Marks)

- a-The method for extraction of *Ganoderma* polysaccharides and its medicinal use
- b-Mention the factors affecting microbial pigment production


Fourth question :

(15Marks)

- a-Describe the principles method of food preservation)
- b-Identify generation time and its relation with food preservation.
- c-Complete: 1-Pigments can be used in
- 2-Mushrooms contain important compound as.....
- 3-Microbial-pigments are sensitive to

Best wishes

Best wishes:Prof. Dr. Abd El-Raheem El-Shanshoury&Prof. Dr. Eman Abd El-Zaher

	TANTA UNIVERSITY - FACULTY OF SCIENCE - BOTANY DEPARTMENT			
	إختبار الدبلوم المهني – إحصاء حيوى			
	Course Title	Biostatistics For Professional Microbiology Diploma		Course Code:
DATE	Feb 2021	Term: First	Total Assessment: Marks 60	Time Allowed: 3 Hr

15 marks for each of the four questions

1-

- a: Make up plans showing a randomized layout for a complete random design and a randomized complete block design with 5 treatments replicated 4 times, and key out the degrees of freedom for both designs. Mention the advantages and disadvantages' of both designs.
- b: Define the following statistical terms: 1- controlled variation, 2- continuous variable, 3- qualitative observation, 4- sampled population, and 5- negatively skewed curve.

2-

Based on the following measurements of ages (per week) and heights (cm) of soybean plants in the field:

- a- Calculate the sample regression coefficient.
b- Plot on a graph the sample points of both variables.
c- Construct the sample regression line.

Age (week)	1	2	3	4	5	6	7	8
Height (cm)	5	13	16	23	33	38	40	41

3-

- a. This table indicates the result of a randomized complete block experiment indicating the effect of P and K fertilizers on the surviving plants of sugar beet in North Delta (number of individuals per 100 m² plot).
- b. Calculate the F-value of the blocks and treatments, and mention the advantages and disadvantages of this design.


Treatment	Block			
	1	2	3	4
Control	183	176	291	254
P	356	300	301	271
K	224	258	244	217
P + K	329	283	308	326

4-

- Test the effect of soil salinity and phosphate (P) fertilizer on the growth of wheat as indicated below:
- Suppose the interaction between the two factors is significant. What does it mean?
- The significant F-value for this experiment is: 4.49 ($P = 0.05$), 8.53 ($P = 0.01$) and 10.58 ($P = 0.005$).

Low salinity		High salinity	
Low P	High P	Low P	High P
32.0	39.1	17.5	8.5
23.8	26.2	21.1	20.5
28.9	31.3	20.8	12.5
25.1	45.8	17.3	14.0
29.3	40.2	20.1	10.8

لجنة الممتحنين : أ.د. كمال شلتوت و أ.د. داليا عبد العظيم

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF BOTANY			
	EXAMINATION FOR PROFESSIONAL MICROBIOLOGY DIPLOMA			
COURSE TITLE:	MICROBIOLOGICAL METHODS		COURSE CODE: MBO5111	
DATE: 11/2021	JANUARY, 2020	TERM: FIRST	TOTAL ASSESSMENT MARKS: 60	TIME ALLOWED: 2 HOURS.

Answer the following questions:

1- Put (✓) or false (X) in front of each of the following sentences (10 Marks):

1. A heated tungsten filament in the electron gun does not generate a beam of electrons that focused in specimen.
2. Glass lens is used to focus the electron beam in the electron microscope.
3. It is not an important to get high vacuum in electron microscope tube to obtain clear image.
4. Scanning electron microscope has been used to examine the details of microorganisms.
5. Porous particles should not be used to separate multiple components.
6. In practice, a turbidostat operates well for a brief period, but the control of the turbidity eventually becomes unreliable.
7. Generation (doubling) time is the time required for the population to double in size
8. In order to examine the biological sample under electron microscope; it should not be fixed and dehydrated.
9. Globular protein molecular weight could be determined by using Ion exchange chromatography.
10. Successful separation by Affinity chromatography does not require that abiospecific ligand is available that attached to bed material or the matrix.

2- Discuss the following: (24 Marks)
Clinical human specimens collection, preparation, and isolation from:


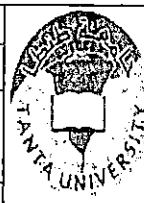
Blood, bone marrow, cerebrospinal fluid (CSF), cutaneous specimens, exudates, pus and drainage, eye, stool, tissues, and urine.

3- Explain each of the following: (26 Marks)

- a- Principle and application of affinity chromatography as an important analytical tool.
- b- *In vitro* evaluating antimicrobial activity
- c- PCR basis and applications

Best wishes

Examiner: Prof. Dr. Yehia Abdel-Galele Mahmoud

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	EXAMINATION FOR PROFESSIONAL MICROBIOLOGY DIPLOMA			
COURSE TITLE	INDUSTRIAL MICROBIOLOGY AND QUALITY CONTROL	COURSE CODE: PMBO5113		
DATE: 00/01/2021	JANUARY 2020	TOTAL ASSESSMENT MARKS: 60	TIME ALLOWED: 2 HOURS	

Answer the following questions

1) Compare between the following

- a. Quality control and quality assurance.
- b. Group I and II Bioreactors with respect to mixing and aeration?
- c. SSF and SMF with respect to Substrates, Aseptic conditions, Metabolic Heating and Contamination

2) Write on the following

- a. Different types of submerged fermentation
- b. SSF has several potential advantages over SmF
- c. Substrate preparation for solid state fermentation
- d. Economic aspects of downstream processing

3) Answer the following

- a. Mention the advantages and disadvantages of using spores compared to vegetative cells on solid substrate
- b. How can the temperature be controlled during fermentation?
- c. When the immobilized whole cell system may be implemented?
- d. define the following
 - a. Total Quality Management (TQM)
 - b. ISO

4) Give an account on

- a. Similarities and differences between Stirred-bed and static packed bed bioreactors.
- b. The effect of moisture content on the solid substrate fermentation process
- c. Factors affecting leaching process and solvents that can be used.

With my best wishes

EXAMINER	MOHAMED YASER BEDAIWY
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