Department of Botany and Microbiology *Faculty of Science* *Assiut University*		*Third level* - *2018/2019* *Final Examination of Microbial Toxins (393 B)* *Summer Semester* – *2 hours*

Answer the following questions (50 marks

I-Write on 3 only of the following: (21 marks)

1-Microbial toxins classification.

2-Natural occurrence of of mycotoxin.

3- Effect of water activity and moisture content on mycotoxins production.

4-Steratiges for pre-harvest prevention of mycotoxins.

II-Mention the mycotoxin that affect 3 only of the following systems and their symptoms: (9 marks)

1-Respiratory system

2-Urinary system

3-Reproductive system

4-Vascular system

III-Explain each of the following: (20 marks)

1-Metabolism of aflatoxin in liver.

2-Biosynthesis pathway of patulin.

Good luck ***Prof .Dr. Hassan A. H. Hasaan***

Department of Botany and Microbiology Faculty of Science Assiut University		Third level - 2018/2019 Final Examination of Microbial Enzymes (394 B) Summer Semester – 2 hours

Answer 4 only of the following questions (50 marks)

1-Give an account for classification each of the following (12.5 marks)

a-Enzymes.

b- Cofactors.

2- Describe each of the following (12.5 marks)

a- How can the cell regulate enzyme activity by ATP and AMP with drawing.

b-Application of amylase.

3-Explain each of the following (12.5 marks)

a- Ligases enzymes with giving 2 examples for reactions.

b-Hypotheses of enzyme–substrate mechanisms with drawing.

4-Write on each of the following (12.5 marks)

a-Enzymes properties with examples and drawing.

b-Effect of extreme temperature and pH on enzyme activity.

5-Compare in table between each of the following (12.5 marks)

a-Oxidoreductases used in industry on bases of microorganisms and application.

b-Non-competitive and un-competitive Inhibitors with drawing.

Good luck ***Prof. Dr. Hassan A. H. Hasaan***

Assiut University Faculty of Science Botany & Microbiology Dept		جامعة أسيوط كلية العلوم قسم النبات والميكروبيولوجى
Mycology2 (362B)	**Final exam (Summer 2019)**	**Time: 2 h.**
Microbiology & Chemistry/Microbiology students		**3rd level students**

Answer the following questions (with labeled diagram if possible)

I. Give a short account on 8 only of the following:- **(20 Marks)**

1. Three examples of Gastromycetes, give their systematic position.
2. Economic importance of *Aspergillus.*
3. The uninucleate spores in life cycle of *Puccinia graminis.*
4. Two examples of fungi producing asci containing four ascospores.
5. Different types of mycelia in Basidiomycota.
6. Harmful effects of *Candida* species.
7. Main criteria used in differentiation between *Fusarium* species, give two examples.
8. How can differentiate between *Penicillium* species?, give two examples.
9. Medicinal importance of fungi within Pyrenomycetes.

II. Compare between 6 only of the following:- **(9 Marks)**

1. *Geotrichum* & *Geastrum*
2. Perithecium & Pycnidium
3. *Aspergillus flavus* & *A. niger*
4. Uredinaceae & Ustilaginaceae.
5. Discomycetes & Sordariomycetes
6. Flowering & seedling infections.
7. Gymnothecium & cleistothecium

III. Write the anamorph for 6 only of the following **(6 Marks)**

1. *Neosartorya*	2. *Hypocrea*		3. *Nectria*
4. *Microascus*	5. *Talaromyces*	6. *Cochliobolus*	7. ***Talaromyces***

IV. Give the scientific term for 10 only of the following:- **(5 Marks)**

1. Sexual fruiting body of *Peziza.*
2. Species of *Aspergillus* producing lovastatin.
3. The fungus of powdery mildew forming coiled appendages.
4. The terminal part of *Aspergillus* conidiophore.
5. An ascoma produced by *Erysiphe.*

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6. the main components of cell wall of Ascomycota.
7. A fungus completes its life cycle on only one host.
8. The class to which Order Hypocreales belongs.
9. Fungi that can live at high pH values.
10. A group of fungi that producing sexual stage underground.
11. Fungi that grow symbiotically inside plant tissues.

V. Choose the correct answer for <u>10 only</u> of the following:- **(10 Marks)**

1. *Uromyces fabae* causes
   a. Rust of bean b. Smut of bean c. Powdery mildew of bean d. Bean rot
2. *Terfezia* belongs to
   a. Eurotiomycetes b. Plectomycetes c. Taphrinomycetes d. Discomycetes
3. Which of the following fungi producing sporodochium
   a. *Puccinia* b. *Geotrichum* c. *Fusarium* d. *Trichoderma*
4. *Microsphaera* is the causal agent of
   a. Downy mildew b. Powdery mildew c. Dermatomycosis d. Wilt
5. The causal agent of the loose smut of wheat
   a. *Ustilago tritici* b. *Urocystis cepula* c. *Ustilago maydis* d. *Urocystis tritici*
6. Which of the following fungi causes leaf curl disease
   a. *Penicillium* b. *Aspergillus* c. *Alternaria* d. *Taphrina*
7. The causal agent of tomato wilt disease
   a. *Fusarium oxysporum* f .sp. *vasinfectum* b. *Fusarium solani*
   c. *Fusarium oxysporum* f. sp. *lycopersici* d. *Alternaria alternata*
8. The section that characterized by producing spores with multi-transverse septa
   a. Dictyosporae b. Didymosporae c. Scolecosporae d. Phragmosporae
9. Which of the following fungi used in the manufacture of cheese
   a. *P. chrysogenum* b. *P. camemberti* c. *P. marnefii* d. *A. terreus*
10. *Pseudoallescheria boydii* belongs to Order
    a. Eurotiales b. Microascales c. Hypocreales d. Pezizales
11. The conidia of *Trichoderma* belong to section
    a. Amerosporae b. Helicospoac c. Phragmosporae d. Dictyosporae

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Best wishes ***Prof. Mohamed A. Abdel-Sater***

Assiut University,
Faculty of Science
Department: Botany & Microbiology
Academic Programs: Chemistry & Microbiology and Microbiology
Course Code 396B, Course Title: Industrial microbiology
Total Degree: 50 marks Forth& Third levels, Summer Semester

Studying Year : 2018/ 2019
Allowable Time : Two hours

Final Term Exam

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1. Give an account on only five of the following: (25 marks, 5 for each)
   a) General characters of industrial microbe.
   b) Active dry Baker's yeast production conditions using molasses as raw material.
   c) Preparation of sugar beet molasses for citric acid production.
   d) Preparation of feed tank and starter for vinegar production.
   e) Isolation and purification of penicillin from fermented mash.
   f) Application of biotransformation technique for production and improvement of androgen hormones.

2- What are the main advantages of the following? (15 marks, 3 for each)
   a) Addition of steering agents in microbial production of glycerol.
   b) Using ethanol as biofuel in Egypt.
   c) Application of anaerobic fermentation technique for ethanol production.
   d) Using biological assays for detection of antibiotics.
   e) Introduce epoxidation reaction on a steroid hormone.

3- Write on the uses of the following: (10 marks, 2 for each)
   a) Ethanol at 99% concentration.
   b) Rapid-rise Baker yeast.
   c) Citric acid.
   d) Tetracycline as antibiotic.
   e) Surface culture fermentation.

WITH MY BEST WISHES

Prof. Dr.: A. A. Zohri

Botany and Microbiology Department, Faculty of Science, Assiut University

Final Exam. of the Summer Semester (Aug. 2019)

For the 3rd level Microbiology Students

Subject: Microbial Metabolism (392 B) Maximum Allowed Time: 135 Min.

Q.1: Discuss Briefly Three Only of the following:- (12 Marks)

a- Oxidative phosphorylation. b- Lactic acid and glycerol fermentation.

c- Catabolism of fatty acids. d- The reductive Citric acid pathway.

Q.2: Give a Brief account on THREE ONLY of the following:- (9 Marks)

a- Photolithoautotrophs. b- Biosynthesis of fatty acids.

c- Anoxygenic photosynthesis. d- Hexose monophosphate pathway.

Q.3: Compare Briefly between (Choose ONLY THREE points):- (9 Marks)

a- Cyclic and Non-cyclic photophosphorylation.

b- Entner-Doudoroff (ED) and Embden-Meyerhoff-Parnas (EM) pathways.

c- Chemolithoautotrophs and Chemolithoheterotrophs (Give examples).

d- Cellular respiration and fermentation.

Q.4: Write Briefly on THREE Only of the following:- (9 Marks)

a- Biosynthesis of chitin in fungal cell. b- Biosynthesis of amino acids.

c- Tricarboxylic acid cycle (TCA) could be regarded as assimilative and dissimilative pathway.

d- Various pathways of pyruvic acid. e- Biosynthesis of glycerol from glucose.

Q.5: Circle the correct answer (CHOOSE TEN POINTS ONLY):- (5 Marks)

1- Cytochromes are the electron carriers in (Mitochondria only – Chloroplast only – Both).

2- Glycolysis takes place in (Mitochondria – Cytosol – Chloroplast – Ribosomes).

3- Water in biophysical reaction is the source of (Electrons –Oxygen – Both).

4- The common pathway for oxidation of carbohydrates, lipids and amino acids
(Calvin cycle - Electron transport chain - TCA cycle - Pentose phosphate pathway)

5- Which molecule will combine with the four-carbon oxaloacetate in the TCA cycle to form the six-carbon citrate? ... (Lactic acid- NADH – ATP- acetyl-CoA –None of all)

6- . In anoxygenic photosynthesis, the green and the purple bacteria do not use which of the following one as an electron source? (H_2O - H_2 - H_2S - S (Elemental sulphur).

7- RuBisCO enzyme plays an important role in:- (light phase- dark phase- electron transport chain-TCA).

8- The Embden-Meyerhof and Entner - Douderoff pathways are two related pathway that is also called? (Gluconeogenesis- Lipolysis - Glycolysis - Cori Cycle).

9- Which of the following compounds are electron acceptors used in anaerobic respiration?
(Nitrate – Sulfate- Fumarate - All of these).

10- Entner-Doudoroff pathway is found in:-
(Aerobic prokaryotes- Anaerobic prokaryotes- In the both - Aerobic eukaryotes).

11- The metabolic process by which molecular nitrogen in the air is converted into ammonia or related nitrogenous compounds in soil. (CO_2 fixation- Glycolysis – Calvin cycle – None of all)

Q.6: Write True or False beside SIX ONLY of the following sentences, and correct the false ones. (6 Marks)

1- During the carboxylation phase of the Calvin cycle, CO_2 combines with citric acid. ( ).

2- Nitrate is the final electron acceptor in aerobic respiration. ( ).

3- Non-competitive inhibitors compete with normal substrate for the active site of the enzyme. ( ).

4- Glyoxylate pathway is used when acetate is the sole source of carbon for some microorganisms.( ).

5- Succinic acid will combine with the four-carbon oxaloacetate in the TCA cycle to form the six-carbon citrate ( ).

6- The respiratory chain of bacteria is associated with the mitochondrial membrane. ( ).

7- Anoxygenic photosynthesizing bacteria use only one system for harvesting energy from light (Photosystem I) whereas oxygenic organisms use Photosystem I and Photosystem II. ( )

Good Luck

Prof. Abdel-Raouf M. Khallil