Assiut University
Faculty of Science
Department of Botany & Microbiology

جامعة أسيوط
كلية العلوم
قسم النبات والميكروبيولوجى

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

Final exam: 27th August 2018
Time allowed: 2 hours

Answer the following two questions (50 Marks)

I. Give a short account on 5 only of the following (10 Marks)

1. Stages of infectious diseases
2. Factors affecting non-specific host defense
3. Risk factors of Aspergillosis
4. Resident skin normal flora
5. Portals of pathogen entry
6. Preventing the spread of pathogens

II. Give the reason(s) for 6 only of the following (12 Marks)

1. Failure of bacteria to infect healthy body
2. Echinocandins are safe for human body
3. Small LD50 of exotoxin producing bacteria
4. In case of food poisoning, solid foods and dairy should be avoided
5. Penicillin is not affected in treatment of viral diseases
6. Human body has a high resistance against fungi
7. Rising body temperature following infection

III. Write one difference between 5 only of the following (5 Marks)

1. Tinea pedis & Onychomycosis
2. Typical & Atypical pneumonia
3. HCV & HIV
4. Resident & Transient microflora
5. Endogenous & Exogenous infections
6. Gram-positive & -negative bacteria

IV. Write one example for 8 only of the following (8 Marks)

1. Invasive pathogen without producing toxins
2. Protozoan diseases
3. The causal agent of typical pneumonia
4. A disease contracted via mouth cavity
5. Opportunistic fungi
6. A pathogen transmitted by contaminated fomites
7. Causal agent of Tinea capitis
8. Adhérence factors
9. Food poisoning bacteria

"بقية الاسئلة فى الصفحة القادمة"

Assiut University	Faculty of Science	Botany & Microbiology Department
Third Levels	Summer course	Chemistry & Microbiology and Microbiology
5-9-2018	No. 363	Physiology of Fungi,
Two Hours	50 Marks	Final Examination

I. Write about ONLY THREE from the following [15 marks (five for each point)]:-

1. Classify the nutritional factors affecting on fungal growth **(count only).**
2. Effect of light on fungal growth.
3. Differences in fungal cell walls depend up on many factors **(count only).**
4. For obtain the pure cultures in fungal physiology follow-up many steps (**summerize**).

II. Give the scientific word clearing and identify the following statements [12 marks]:-

1. Old fungal spores have .....supported by ..... and .....which .....act as .....aganist unfavorable conditions.
2. The chitin is a .....polymers have .....molecules and found in .....fungi.
3. The range of thermophilic fungi ranged between .....to ..... ^{o}C but pyschrophilic fungi ..... ranged between .....to .....
4. Zygomycetes cell walls have .....and .....but the Oomycetes have .....
5. Static culture has .....kind of growing layers but submerged cultures has ..... growing layers.
6. Synthesis for another identify as a relationship between..... fungus grow very poorly in pure culture but produced sexual organs when it grown in mixed culture with .....
7. Cardinal points for each physiological process includes ....., ... and..... point.
8. Industerial production of acetic acid depend up on the relation ship between .....and .....named.....
9. But the *Penicilium chrysogenium* produced ..... in ..... for control and prevent the growth .....

III. Draw only the following [7 marks]:-

1. Different layers of fungal cell wall **[2marks]**.
2. Growth curve of *Saccharomyces cervisieae* **[3 marks].**
3. Effect of 12 hours light alternative with 12 hours darch on *Trichoderma* **[2 marks].**

IV. Compare between ONLY FOUR from the following [16 marks]:-

1. Adaptation and stationary phase in growth curve of the filamentous.
2. Pathogenic and assist relationship.
3. Alkalyphilic and strong acidophilic fungi.
4. Osmophilic and halophilic fungi.
5. Effect of carbon and copper on fungal cells.

With All My Best Wishes and Good Luck
Prof: Eman Mostafa M

Department of Botany and Microbiology
Faculty of Science
Assiut Universitv

Final Exam. For the 3rd level students (Microbiology)- Summer Semester, 2018.
Subject: Biology of Aquatic Fungi (361 B) **Maximum Allowed Time: 135 Min.**

Answer The Following Questions:- (Note: 6 pages should be considered)

Q.1: Circle the correct answer (Give the fit word if it is missing) **(5 Marks)**

a- The association of organisms that live together and that exhibit well-defined nutritional or behavioral interrelationships.
(Communities – Ecosystems– Biodiversity – wetland - All of these)

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b- An aquatic fungus which could be used as biocontrol agent for nematode
(*Coelomomyces* – *Olpidium* - *Aphanomyces* – None of all)

.....

c- The physical location in the environment to which an organism has adapted
(Migrants – Mesosomes – Thermocline layer- lotic habitat – None of all)

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d- The organisms which feed on a variety of food sources.
(Parasites – Saprophytes – Pathogens- Synergism- None of all).

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d- The aquatic fungus which is an obligate parasite on some arthropods and thereby is emphasized the great potential in the biological control of mosquitoes larvae.
(*Olpidiopsis* - *Aphanomyces* – *Alatospora* – *Plasmidiophora* – Non of all)

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Q.2: Give the organism (s) name which is related to Four Only of:- (2 Marks)

a- Gill rot disease of fish (.....)
b- Aquatic fungi that have high capability to degrade lignin (.....)
c- Zoosporic fungi which may be among the main reasons for the disintegration of a water blooms. (.....)
d- Potato wart disease which reduces crop yield and edibility. (.....)
e- Pythiomycoses for human. (.....)

Q.3: Give the scientific term which is related to TEN ONLY of the following (Put your answers in the next table):- **(10 Marks)**

a- Organisms that combat to capture of resources which have previously been captured by other organisms.
b- Group of metabolically related organisms that exhibit similar habitat requirements and that respond in a similar way to changes in their environment.
c- The community which held together by complex interactions between the biotic and abiotic factors in a given water area.
d- Variation of life forms, genera and species in an aquatic habitat.
e- The interaction between two different aquatic fungi at which one member benefits while the other does not benefit nor is it harmed.

f- **It is a biological phenomenon by which an aquatic fungus produces one or more biochemicals that either positively or negatively influence the growth, survival, and reproduction of other organisms.**

g- **A natural aquatic environment which is lacking a continuous flow of water.**

h- **Aquatic fungi that move between aquatic and extra-aquatic habitats in haphazard rather than regular.**

i- **Description of certain aquatic habitat which should be considered in any sampling procedure and deals with depth, dimension, geology of shores, sediment distribution, currents, inflow and outflow of water, etc.**

j- **The buffer zone between the warmest and coolest layers in aquatic habitat which ordinarily prevents the mixing of the two layers.**

k- **Water ecosystems which are characterized by nutrient-deficient, relatively low productivity and support few microorganisms.**

(Give your answers in the following table):-

No	Answer	No	Answer
a		g	
b		h	
c		i	
d		j	
e		k	
f			

Q.4:Define Briefly five only of the Following:- (10 Marks)

a- Resident or indwelling organisms:

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b- Antagonism:

c-The light Profile of water ecosystem:

d- Energy and Nutritional Flow in Ecosystems:

e- Primary and secondary marine Ascomycetes:

f- Transient fungi

Q.5: Give only one reason for each the following:- (4 Marks)

a- Superiority and predominance of aquatic hyphomycetes in aquatic ecosystem rather than terrestrial fungi and bacteria:-.....

b- The palatability of falling leaves and detritus which are colonized by aquatic fungi for aquatic invertebrates:- .....

Q.6: Write Briefly on each of the following:- (10 Marks)

a- Rumen fungi and its importance.....

b- Adapation of Zoosporic Fungi for aquatic habitats. .....

c- Occurrence, distribution and population of aquatic fungi as affected by turbidity, light and Water temperature. .....

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d- Adaptation of Aquatic Hyphomycetes for water ecosystem:-

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e- Adaptation of Aquatic Ascomycetes for water ecosystem:

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Q.7: Write on only one of the following points: (6 Marks)

A- Different routs for origin of aquatic Ascomycetes:-

a-.....

b- .....

c- .....

B- The main difference between Ingoldian fungi and Aeroaquatic hyphomycetes:

Aeroaquatic hyphomycetes	Ingoldian fungi
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Q.8: Write Briefly on TWO ONLY of the following:- (3 Marks)

a- Interrelationship between aquatic fungi and stream invertebrates:

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b- Mycoremediation and its types:.....

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c- Potential counter-adaptations by fungi may involve hiding from invertebrates:

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The Best Wishes ***Prof. Abdel-Raouf Khallil***

Assuit University
Faculty of Science
Botany & Microbiology
Department

Microbial toxins
(393B)
Final exam :30-08-2018
Time allowed :2 hours.

(I) Give an account on 4 only of the following: (15 M)

a. Role of bacterial toxins in pathogenicity of their producing bacteria.

b. *Alternaria* toxins.

c. Toxic effects of non-protein bacterial toxins on oral tissues.

d. Hemolysin as an algal toxin.

e. Cholera toxin.

(II) Write on chemical structure, producing microorganisms and toxic effects of the following: (15 M)

a. Sterigmatocystin .

b. Zearalenone.

c. Domoic acid(DA).

(III) Give reasons for each the following: (20 M)

a. Bacterial protein toxins are similar to enzymes.

b. Biotoxins are more dangerous than cytotoxins.

c. Aflatoxin B_1 is the most effect form of aflatoxins.

d. Ochratoxin A has a deleterious effects on farm chicken embryos.

Best wishes

Prof. Dr. Ahmed Lotfy El-Sayed

Assiut University Academic Programs: Microbiology and Chem. & Microbiology
Faculty of Science Studying Year : 2017/ 2018
Department: Botany & Microbiology Allowable Time : Two hours
Course Code 396B, Course Title: Industrial microbiology
Total Degree: 50 marks Forth& Third levels, Summer Semester

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 scale fermentor.
   b) Production of active Baker's yeast from prepared yeast cram.
   c) Ethanol fermentation conditions.
   d) Different down-stream processes in cider vinegar production cycle.
   e) Preparation of fermentation medium and microbe for cephalosporin production.
   f) Bio-hydroxylation of steroids with special reference to their medicinal importance.

2- What are the main advantages of the following? (20 marks, 4 for each)
   a) Using osmophilic yeast for glycerol production.
   b) Using agro-industrial wastes for ethanol production in Egypt.
   c) Using surface culture fermentation for citric acid production.
   d) Using both chemical and biological assays for detection of antibiotics.
   e) Introduce dehydration reaction on a steroid hormone.

3- Identify only five of the following: (5 marks, one for each)
Industrial microbiology, Rapid-rise Baker yeast, Date vinegar, Immobilized cells fermentation, Bio-fuel, B-Lactam antibiotics and Precursors.

WITH MY BEST WISHES

Prof. Dr.: A. A. Zohri

Botany and Microbiology Department,
Faculty of Science, Assiut University

Final Exam. For the 2nd level students
Summer Semester - Sept., 2018.

Subject: Phytopathogenic fungi (364 B) **Maximum Allowed Time: 135 Min.**

Answer the Following Questions, and Illustrate your Answers Whenever Possible.

Q.1: Define Briefly Five Only:- **(10 Marks)**

A- Disease establishment.
B- Endemic (Enphytotic) diseases.
C- Diseases signs.
D- Pathogenicity.
E- Syndrome.
F- Macrocyclic life cycle.
G- Phytoalexins.

Q.2: Compare with Illustration Between (Write the disease name for each): **12 Marks)**

A- *Uromyces* , *Puccinia* and *Phragmidium*
B- Germination of the winter (resting) spores of the pathogens which are related to Ustilaginaceae and Tilletiaceae.
C- *Spongospora*, *Pythium* , *Taphrina* and *Phytophthora*

Q.3: Using a Labeled Diagram and a Brief Comment, show Three Only of the following:- **(12 Marks)**

A- The disease cycle of cabbage club root showing the main characteristic features of the causative agent and the disease symptoms.
B- Differentiation between fungal genera which are responsible for powdery mildew diseases.
C- Distinction between four genera of downy mildews fungi.
D- The life cycle of an obligate parasite organism which causes rust diseases of cereals.

Q.4:- Discuss Briefly Four Only of the Following:- **(12 marks)**

A- Factors affecting disease occurrence.
B- The infection mechanism of a biotrophic pathogen.
C- The host mechanical resistance against the pathogens.
D- Damping off and seedling blight.
E- The advantages of biological control in comparable with chemical control.

Q.5: Fill Eight Gaps Only in the Following Table:- **(4 Marks)**

	Disease	The causal agent
1		*Venturia inaquales*
2	White rust of Portulacae	
3	Ergot disease of cereals	
4	Dutch elm disease	
5		*Nectria galligena*
6	White rot of Onion	
7		*Ustilago maydis*
8	Wilts diseases	
9		*Aspergillus niger*
10	Blue rot of citrus	

Good Luck ***Prof. Abdel-Raouf M. Khallil***

Assiut University **Faculty of Science** **Botany & Microbiology Dept**		**جامعة أسيوط** **كلية العلوم** **قسم النبات والميكروبيولوجى**

Mycology2 (362B)	**Summer course (2018)**	**Time: 2 h.**
Microbiology & Chemistry/Microbiology		**3rd level students**

Answer the following questions with labeled diagram if possible:

I. Give an account on 5 only of the following: **(10 Marks)**

1. Formation of basidiocarp
2. The main criteria used for identification of *Aspergillus* species
3. Two examples of edible fungi
4. Morphological differentiation between the causal agents of powdery mildews?
5. Ascospores are produced within different structures? Discuss this statement
6. The benefits and harmful effects of yeasts

II. Give one difference between 10 only of the following: **(10 Marks)**

1- Dictyosporae & Phragmosporae
2- *Cryptococcus* & *Candida*
3- Biverticillium & Aspergilloides
4- *Stemphylium* & *Pleospora*
5- Basidiomycota, Ascomycota and Deuteromycota.
6- Clavicipitaceae & Hypocreaceae
7- *Aspergillus niger* & *A. fumigatus*
8- Mycorrhizae & lichens
9- Monophialide & Polyphialide
10- Pycnidium and perithecium
11- *Pseudoallescheria boydii* & *Ceratocystis fimbriata*
12- Homothallic & Heterothallic

III. Illustrate 8 only of the following: **(10 Marks)**

1- Scolecosporae
2- Sporodochium
3- Clamp connection
4- Sexual reproduction of yeasts
5- Flowering infection
6- Asexual stage of *Fusarium*
7- Subgenus *Penicillium*
8- Sexual stage of *Sordaria*
9- Didymosporae
10- Two stages in life cycle of *Puccinia graminis*, one on wheat and other on beriberis

IV. Define and give example each for 10 only of the following: **(10 Marks)**

1. Heterobasidium
2. Synnemata
3. Ochratoxins
4. Plasmogamy
5. Birds nest fungi
6. Holomorph
7. Autoecious
8. Arthrospores
9. Honey dews stage
10. Loose smut
11. Corticolous

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V. Choose the correct answer for 10 only of the following: **(10 Marks)**

1. Which of the following fungi is named puffball:

   a. *Geastrum* b. *Amanita* c. *Penicillium* d. *Puccinia*

2. Tertiary type of mycelium is formed in:

   a. *Ustilago* b. *Uromyces* c. *Puccinia* d. None of the above

3. Which of the following fungi belongs to stinkhorns

   a. *Ganoderma* b. *Phallus* c. *Nidularia* d. Terfezia

4. *Peziza* belongs to:

   a. Hypogean fungi b. Coprophilous fungi c. Puffball fungi d. Jelly fungi

5. *Geotrichum candidum* belongs to:

   a. Pleosporaceae b. Microascaceae c. Dipodoascaceae d. Erysiphaceae

6. Which of the following fungi is used in production of lovastatin:

   a. *Emericella nidulans* b. *Aspergillus oryzae*
   c. *Penicillium citrinum* d. *Aspergillus terreus*

7. Gastromycetes is characterized by:

   a. Heterobasidia inside stomach-like basidiocarp covered with peridium
   b. Holobasidia inside stomach-like basidiocarp not covered with peridium
   c. Holobasidia inside stomach-like cleistothecium covered with peridium
   d. Holobasidia inside stomach-like basidiocarp covered with peridium

8. A biotrophic fungus causing leaf curl disease of peach?

   a. *Uncinula* b. *Taphrina* c. *Candida* d. *Sporothrix*

9. The anamorph of lewia

   a. *Cochliobolus* b. *Exserohilum* c. *Cladosporium* d. *Alternaria*

10. Which of the following families is characterized by presence of cleistothecium:

    a. Pleosporaceae b. Moniliaceae c. Nectriaceae d. None of the above

11. Which of the following species gives the characteristic flavor to cheese

    a. *Penicillium italicum* b. *Aspergillus flavus*
    c. *Aspergillus flavipes* d. *Penicillium camemberti*

12. The teleomorph of Trichoderma

    a. *Fusarium* b. *Hypocrea* c. *Nectria* d. *Talaromyces*

Best wishes

Prof. Mohamed A. Abdel-Sater

Assuit University
Faculty of Science
Botany & Microbiology
Department

Microbial enzymes
(394B)
Final exam :2-09-2018
Time allowed :2 hours.

(I) Give an account on each of the following: **(20 M)**

a. Sources and localization of enzymes.

b. The active site of enzyme.

c. Absolute specifity of enzymes.

d. Free-energy change ΔG.

e. Enzymes used in industrial field and their and their application.

(II) Explain with illustrations 3 only of the following: **(15M)**

a. Role of enzymes in biological reactions.

b. Effect of substrate concentration on enzyme activity.

c. pH value and enzymatic reaction.

d. Presence of uncompetitive inhibitors on enzymatic reaction medium.

(III) Compare between each of the following : **(15 M)**

a. Inorganic and organic cofactors.

b. Constitutive and adaptive enzymes.

c. Hydrolyases EC 3.1 (Esterase) and EC3.4(Peptidase).

d. Competitive and non-competitive inhibitors.

Best wishes

Prof. Dr. Ahmed Lotfy El-Sayed

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

1. Which of the following diseases is not caused by bacteria
   a. Cholera b. Typhus c. Botulism d. None of the above
2. Cystitis is
   a. Upper UTI b. Lung infection c. Blood infection d. Lower UTI
3. Incubation period may be prolonged to years in
   a. HCV b. HAV c. HBV d. HIV
4. Which of the following infections is caused by the varicella-zoster
   a. Shingles b. Tuberculosis c. AIDS d. Pyelonephritis
5. More visible symptoms of fungal infection of humans are appearing recently because
   a. More people live in areas that contain endemic organisms
   b. Pathogens have mutated to increased virulence on humans
   c. New pathogens are being identified as the source of infections
   d. More people are getting opportunistic infections because more people have suppressed immune systems
6. *Microsporum gypseum* is considered as
   a. Zoophilic b. Geophilic c. Anthropophilic d. All of the above
7. The infection site of kuru disease is
   a. Brain b. Skin c. Lung d. Kidney

VI. Define 10 only of the following terms: (10 Marks)

1. Mycetoma
2. Phagocytosis
3. Asymptomatic period
4. Pyrogens
5. Gonorrhea
6. Fungemia
7. Syndrome
8. Pathogenicity
9. Acquired immunity
10. Toxoid
11. Lysozyme
12. Lymphadenopathy

" انتهت الاسئلة "

Best Wishes ***Dr. Nemmat A. Hussein***