

Assiut University Academic Program: Applied Microbiology Diploma
Faculty of Science Studying Year : 2014/ 2015
Department: Botany & Microbiology, Course Code 511B
Course Title: Industrial & Medical microbiology September 2015
Total Degree: 100 marks Allowable Time : Three hours

Part I: Industrial Microbiology (50 marks, Time: 90 min)

1. Describe Three only of the following: (18 marks, 6 for each one)

- a) Different methods for isolation and purification of penicillin from fermented mash.
- b) Microbial epoxidation and dehydrogenation of steroid hormones with special reference to medicinal useful, using microbes and chemical structure of the starting material and the products.
- c) The general criteria of an inoculum and the factors effecting on the effective inoculum.
- d) The main factors that affect the final choice of raw material for a fermentation process.

2- Explain Three only of the following: (18 marks, 6 for each one)

- a) Factors considered in selection of antibiotic for manufacture.
- b) Chemical structures and medicinal applications of some compounds formed by microbial side chain degradation technique of progesterone.
- c) The aspects to consider in scale down of a fermentation process.
- d) Different points must be considered in designing ethanol producing fermentor.

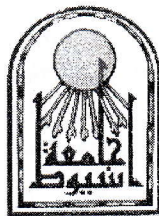
3- Comparing between each of the following: (14 marks, 2 for each one)

- 1- Metabolism and anabioses.
- 2- Chemical structure of cortisol and cortisone.
- 3- Surface culture and immobilization technique for citric acid bio-production.
- 4- Inhibitors and precursors as additives in fermentation medium.
- 5- Sterilization of air supply and exhaust gas in a fermentation process.
- 6- Control of agitation and pH in a fermentation process.
- 7- AISI 316 and AISI 317 as construction material for industrial scale fermentation.

WITH MY BEST WISHES

Prof. Dr.: S. S. El-Maraghy

Prof. Dr.: A. A. Zohri



Answer the following four questions

(50 marks)

I) Give short accounts on 4 only of the following (20 marks, 5 each)

- 1) Laboratory techniques used for diagnosis of bacterial and fungal pathogens?
- 2) Microbial enzymes as virulence factors associated with colonization and invasion?
- 3) The differences between exotoxins and endotoxins?
- 4) Each region of the human body provides a different environment (niche) for particular microbiota. Briefly discuss this statement (giving examples)?
- 5) The differences in the structure and ways of transmission of hepatitis viruses?
- 6) Portals of entry and exit of pathogens into or from human/animal body?

II) What is meant by..... (answer 10 only) (10 marks)

- 1) A contagious disease.
- 2) Health-care associated infection.
- 3) Transient normal microbiota.
- 4) Cadidemia.
- 5) Vectors.
- 6) Host immunity.
- 7) Wood's lamp.
- 8) A narrow-spectrum antibiotic.
- 9) Inanimate reservoirs of infection.
- 10) Incubation period.
- 11) Inapparent infection.
- 12) Endemic disease.

III) Choose the correct answer (or complete) for 10 of the following: (10 marks)

- 1) Which of the following bacterial genera form endospores greater in their diameters than their vegetative cells?

* *Bacillus* * *Fusarium* * *Staphylococcus* * *Clostridium*

- 2) Which one of the following organisms causes rocky mountain spotted fever?

* *Klebsiella* * *Rickettsia* * *Viruses* * *Prions*

- 3) Which of the following diseases is sexually-transmitted?

* *Syphilis* * *Onychomycosis* * *Aspergillosis* * *Meningitis*

- 4) Which of the following organisms are found in the genitourinary tract?
 * *Escherichia coli* * *Lactobacillus* * *Candida* * *Aspergillus*
- 5) Infection of the cornea is termed as
 * **Keratitis** * **Onychomycosis** * **Otomycosis** * **Mycetoma**
- 6) Which of the following microorganisms can cause pneumonia?
 * *Cryptococcus* * **Influenza virus** * *Streptococcus* * *Haemophilus*
- 7) CHROMagar is a diagnostic medium for
 * *Trichophyton spp.* * *Bacillus spp.* * *Candida spp.* * **Hepatitis viruses**
- 8) Which of the following tiny animals carry Rickettsia responsible for epidemic typhus?
 * **Flees** * **Ticks** * **Mosquito** * **Body lice**
- 9) Cholera is caused via drinking water contaminated with.....
- 10) The main three categories of mycotic diseases are, and
- 11) The presence of toxins in the blood is termed as
- 12) The normal microbiota found in the lower intestine are mainly and
- 13) Medical specimens for laboratory analysis include,,, and.....
- 14) Normal microbiome are not normally found in some organs of healthy people such as, and

IV) Answer 10 only of the following (by only one word): (10 marks)

- 1) Infectious agents composed primarily of protein.
- 2) Presence of fungal cells in the host's blood.
- 3) A group of microorganisms can cause diseases and carried by ticks and fleas.
- 4) Measurable changes in the patient.
- 5) Chemicals act on the hypothalamus and reset the body thermostat to a higher temperature.
- 6) Give one reason why penicillin is not taken for a viral infection?
- 7) Increase in white blood cells circulating in blood stream?
- 8) Swelling of lymph nodes draining an area where an inflammatory response has occurred.
- 9) The number of organisms required to establish an infection.
- 10) Specific proteins produced by the immune system in response to a particular pathogen.
- 11) Found in tears, saliva & sweat and lyses the peptidoglycan of bacterial cell wall.
- 12) Factors that enhance the capacity of an organism to cause disease.
- 13) Surface molecules on host tissues to which pathogens adhere or bind.

Best Wishes

(6/9/2015)

Professor Mady Ahmed Ismail

Assiut University
Faculty of Science
Botany & Microbiology
Department



جامعة أسيوط
كلية العلوم
قسم النبات والميكروبيولوجي
الزمن: ساعة ونصف

Especial Course Exam. (Environmental Pollution) for Diploma of Applied
Microbiology Students (515B)
Sept. 2015

I- Answer the following question: (20 marks)

- a) Explain the Mechanisms of heavy metals accumulation by algae.
- b) Write on the effect of Copper and Aluminium on algae.

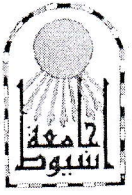
II- Answer Two only of the following questions: (30 marks)

- 1) Write an essay on the algal bloom with special reference to its biological control. (15 marks)
- 2) Algae used as a monitor of water quality, discuss this statement with examples. (15 marks)
- 3) Write on the nutrient removal from wastewater by means of Bacteria. (15 marks)

Prof. Dr./ Mahmoud. S. Adam (M. S. Adam)

Dr./ Mustafa A. Fawzy (M. A. Fawzy)

(510 β)

	Exam of special course (parts Hematology & Parasitology) for the Diploma of Microbiology September 2015 Marks: 50 Times :1.5 Hours	
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Part: Hematology :

Write on five only of the following (25 marks; 5 marks each)

- 1- Main component of the blood.
- 2-Hemolytic anemia
- 3-Types of fixed macrophags
- 4- Definition and functions of fever.
- 5- Purposes of clinical chemistry tests.
- 6- Liver function tests.

Part: Parsitology: (25 marks)

I- Enumerate the parasites that may be found during examinations of blood film and make labeled diagrams, of the stages seen. (9 marks)

II- Answer on Two Only of the following (8 marks each):

- 1- Make labeled diagrams of the nematodes eggs that may be found in the feces.
- 2- Write an account on the effect of parasites on hosts.
- 3- Write briefly on the sources of parasitic infection.

Good Luck!



Final Examination for Diploma in Applied Microbiology

SECTION - A

Answer the following questions:

- 1. Discuss in details the various criteria used for classification and identification of Arbuscular Mycorrhizal (AM) fungi(20 marks)**
- 2. Explain only three of the following:**
 - a) Sympodial and synchronous growth of conidial production
OR Thallic spore development (10 marks)**
 - b) Micronematous and macronematous conidiogenous cells(10 marks)**
 - c) Distinguishing features of *Emericella variecolor* OR *Eupenicillium alutaceum*(10 marks)**
 - d) Diagrammatic representation of Saccardo's spore forms(10 marks)**

Best wishes

Prof. Dr. Sobhy Ibrahim Ismail Abdel-Hafez

SECTION - B

Answer two questions of the following:

- 3- Describe with diagrams of the following fungi and mention their role in the field of biocontrol:..... (25 marks)**
 - a. Coniothyrium minitans*
 - b. Beauveria bassiana*
 - c. Trichoderma harzianum*
 - d. Paecilomyces lilacinus*
- 4- Describe with diagrams the Life cycle of *Coelomomyces*.....(25 marks)**
- 5- Discuss giving examples the importance of fungi in production of anticancer compounds.....(25 marks)**

Best wishes,

Professor Dr. Ahmad M. Moharram



University: Assiut

Department: Botany & Microbiology

Course code: 513 B

Total degree: 100 marks



Faculty: Science

Allowable Time: Three hours

Studying Year: 2014 & 2015

Final examination

Academic program: Diploma Applied Microbiology

Course Title: Soil Microbiology & Microbial Toxins

MYCOTOXINS PART II (25 marks)

Answer all the Following Questions

I- Answer with (✓) or (X) and correct the (false) statements [5 marks]:-

1. Rubratoxin B is a neurotoxin and formed from glucose pathways. ()
2. Balkan endemic nephropathy is causing by sterigmatocystin. ()
3. Zearalenone produce by *Fusarium graminearum* and causing estrogenic activity. ()
- 4- Ochratoxins are chlorinating polyketides produced by *Penicilli* and *Aspergilli*. ()
5. Fusaric acid is an amino acid produced by *Penicillium* and acts as phytotoxins ()

II- Compare between ONE ONLY of the following [4 marks]:-

- a) Penicilic acid & aflatoxin
- b) Pre- and post-harvest mycotoxins control.

III- Illustrate and discuses of the following [10 marks]:-

- a) Different groups of trichothecenes.
- b) Detoxification of aflatoxins by living body.

IV Give the producers and toxicoses of THREE ONLY of the following [6 marks]:-

- 1- Ergotamine 2- Patulin 3- Citrinin 4- Tenuazonic acid



Assiut University
Faculty of Science
Botany and Microbiology Department

Exam.: Deplom of Microbiology

Soil Microbiology and Microbial Toxins(513 B)

(September ..2015)

Time allowed:...3hours

Answer the following Questions with illustrated diagrams if you can

A-Soil Microbiology.....(50 Mark

1-Give an accounts of FIVE ONLY of the following(10 marks each)

- a-Methods for isolation of the rhizosphere microorganisms
- b- The effect of temperature on the microorganisms growth .
- c-Methods for the isolation of microorganisms from the air with special reference to Andreson's sampler.. Explain the effect of the different spores on the human's respiratory system.
- d- Benefits of fungi in food production and in the medicinal and pharmaceutical drugs.
- e- Baiting technique for isolation of fungi from different sources
- f-Isolation of bacteriophages from soil

Good Luck

Prof. Dr.M.B. Mazen



B-Part(I) Bacterial and Algal Toxins (25 Mark)

Answer the following Questions

1-Write on TWO only of the following.....(12 Mark)

- a-General classification of algal and bacterial toxins
- b-The producing algal species of fresh water toxin
- c-Toxicity of lipopolysaccharide and cholera toxins

2-Explain TWO Only of the following.....(13 Mark)

- a-How are vaccines made and types of vaccines
- b-Treatment of bacterial toxins with vaccines
- c-General mode of action of shellfish toxins

Good Luck

Prof. Dr.H.A Hassan



Go to

Part(II) Mycotoxins

Prof Dr. Eyman Mostafa



Botany & Microbiology
Department

Final Exam
2014/2015

Applied microbiology (512B)



Faculty of Science
Time: 3 hours

Part I: Bacteriology: Total 50 Marks

Please answer the following:

Q1: Complete the following: (6 Marks)

- A- The protein molecules that made up the filaments of bacterial flagella are called.....
- B- The basal body of the flagella of Gram negative bacteria has pairs of rings.
- C- The structure of bacterial cell that is responsible for the Gram reaction
- D- Unlike the eubacterial cell wall, the archaeobacterial cell wall does not contain.....but contain.....
- E- The maximum useful magnification obtained with light microscope is.....
- F- R-plasmids carry genes for
- G- The size of most bacteria ranged from to μm in length
- H- Match the spore form on the right with the bacterium on the left.

<i>Clostridium</i>	(a) Conidia
<i>Azotobacter</i>	(b) Endospore
<i>Streptomyces</i>	(c) Cyst.

Q2: Differentiate between the cell wall component structure of *Escherichia coli* and *staphylococcus aureus* (8 Marks)

Q3: Identify four only of the following: (10 Marks)

- A- Transformation
- B- Hfr as a tool of recombination
- C- Transposons
- D- Transcription
- E- Gene cloning

Q4: Give in table the position, composition and function four only of the following: (16 Marks)

- A- Capsule
- B- Endospore
- C- Mesosomes
- D- Plasma membrane
- E- Ribosomes

Q5: Describe with drawing the production of human insulin in *E. coli*
(10 Marks)

Part 2: Virology: Total 50 Marks

Please answer the following:

Q1: Complete the following: (10 Marks)

- 1- is considered to be the real Father of Virology.
- 2- The shapes of viruses are,,
- 3- Viruses are classified according to their nucleic acids into
..... and
.....
- 4- All viruses must direct the formation of at least three types of proteins in their host; which are
.....
- 5- The visible symptoms of viruses on plant are
..... and
.....
- 6- Virus-like symptoms with other agents are
..... and

Q2: Explain with drawing **two only** of the following: (20 Marks)

- A- Role of biotechnology in production of vaccine anti-HBV.
- B- Plant defence against viral infection.
- C- Role of *Agrobacterium tumefaciens* in production of viruses resistant crops.

Q3: Write on **two only** of the following: (20 Marks)

- A-The plant viral life cycle.
- B-The differences between plant viruses and animal viruses.
- C-The movement of virus into plant cells.

Best wishes

Dr. NaeimaYousef

Part 2: Virology: Total 50 Marks

Please answer the following:

Q1: Complete the following: (10 marks)

- 1- The shapes of viruses are
- 2- Classification of viruses according to their nucleic acids are
.....
..... and
- 3- All viruses must direct the formation of at least three types of proteins in their host; they are
.....
- 4- The visible symptoms of viruses on plant are
..... and
- 5- Virus-like symptoms with other agents are
..... and
- 6- is considered to be the real Father of Virology.

Q2: Explain the following: (24 Marks)

- A- role of biotechnology in production of virus resistant crops.
- B- plant defence against viral infection and the virus diverse action.

Q3: Write on the plant viral life cycle. (10 Marks)

Q4: Describe with drawing the movement of virus into plant cells (6 Marks)

