

Medical Microbiology (511 B) for Applied
Microbiology Students

Final exam: 2nd September 2014
Time allowed: 1½ hours

Answer the following four questions

(50 marks)

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

- 1) Laboratory techniques used to diagnose bacterial and fungal pathogens?
- 2) The differences in the structure and ways of transmission of hepatitis viruses.
- 3) The differences between exotoxins and endotoxins?
- 4) Portals of entry and exit of pathogens into or from human/animal body?
- 5) Enzymes produced by microbes as virulence factors associated with colonization and invasion.
- 6) Immune system response to infection?
- 7) Each region of the human body provides a different environment (niche) for particular microbiota. Discuss this statement in brief (giving examples)?

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

- 1) Communicable disease.
- 2) Nosocomial infection.
- 3) Immunocompromised.
- 4) Viremia.
- 5) Opportunistic pathogens.
- 6) Epidemiology.
- 7) Wood's lamp
- 8) Sensitivity test
- 9) Syndrome
- 10) Incubation period.
- 11) Infectious dose.
- 12) Tineas.

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

- 1) Which of the following genera form endospores greater in their diameters than their vegetative cells?
* *Bacillus* * *Staphylococcus* * *Escherichia* * *Clostridium*
- 2) Which one of the following organisms causes kuru disease?
* *Klebsiella* * *Prions* * *Viruses* * *Mycobacterium*
- 3) Which of the following diseases is sexually-transmitted?
* *Gonorrhea* * *Tuberculosis* * *Aspergillosis* * *Meningitis*

- (5)
- 4) Which of the following virulence factors destroy white blood cells?
 * **Coagulases** * **Leukocidins** * **Hemolysins** * **Collagenase**
 - 5) Infection of the cornea is termed as
 * **Keratomycosis** * **Onychomycosis** * **Tinea capitis** * **Mycetoma**
 - 6) Which of the following microorganisms can cause pneumonia?
 * **Cryptococcus** * **Streptococcus** * **Haemophilus** * **Influenza virus**
 - 7) CHROMagar is a diagnostic medium for
 * **Penicillium spp.** * **Aspergillus spp.** * **Candida spp.** * **Hepatitis viruses**
 - 8) Typhoid is caused via ingesting food contaminated withwhile cholera is caused via drinking water contaminated with.....
 - 9) The main three categories of mycotic diseases are, and
 - 10) The presence of bacteria in the blood is termed as
 - 11) The normal microbiota found in the genitourinary tract are mainly and
 - 12) Botulism is caused via ingesting food contaminated with
 - 13) Body fluids which are sterile and do not have normal microbiome in healthy people are....., and

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

- 1) A glycoprotein that bridges junctions between cells, allowing microbes to move from one cell to another.
- 2) Infectious agents composed primarily of protein.
- 3) Presence of toxins in the host's blood.
- 4) A group of microorganisms can cause diseases and carried by fleas and body lice.
- 5) Number of microbes that will kill 50% of inoculated test animals.
- 6) The lipid portion of lipopolysaccharides produced by Gram-negative bacteria.
- 7) Adherence protein binds to receptors on genital tract epithelium.
- 8) Specific proteins produced by the immune system in response to a particular pathogen
- 9) Antibiotics able to destroy many types of bacteria.
- 10) Structures resist host defenses by impairing phagocytosis.
- 11) A decrease in glucose concentration and elevation in protein and white blood cell count in the cerebrospinal fluid (CSF) are characteristic findings for.....
- 12) Give one reason why penicillin is not taken for a viral or fungal infection?
- 13) Found in tears, saliva & sweat and lyses the peptidoglycan of bacterial cell wall.

Best Wishes

(2/9/2014)

Professor Mady Ahmed Ismail

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)

Department of Botany and Microbiology	Diploma of applied microbiology Students
Faculty of Science	Final Examination of Microbial toxins
Assiut University	Second Semester 2013/2014

Part: Bacterial and algal toxins
Answer the following questions

1-Describe the mode of action of 3 only of the following microbial toxins:

- a-Cholera toxin
- b-Gas-gangrene toxin
- c-Nodularin toxin
- d-Saxitoxin

2-Explain 3 only of the following :

- a-Control of bacterial toxins
- b-How are Vaccines Made?
- c-Types and application of vaccines
- d-Diseases produced by shell-fish toxin

Good luck

Prof. Dr. Hassan A. H. Hasaan

Assiut University Academic Program: Applied Microbiology Diploma
Faculty of Science Studying Year : 2013/ 2014
Department: Botany & Microbiology, Course Code 511B
Course Title: Medical & Industrial microbiology September 2014
Total Degree: 100 marks Allowable Time : Three hours

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

First part: Write on the following questions (25 marks)

- 1- The process condition that control fermentation of : (15 marks)
 a) Penicillin (7.5 marks)
 b) Citric acid (7.5 marks)
2- Δ^1 - dehydro-cortisone fermentation. (10 marks)

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

Second part: Give an account on FIVE ONLY of the following questions (25 marks, 5 for each)

- A) The criteria must be taken in your consideration in designing a fermentor.
B) Different application of industrial microbiology.
C) The widely used criteria for transfer inoculum in a fermentation process.
D) Monitoring methods for microbial growth in a fermentor.
E) Factors influencing the choice of carbon sources for large scale fermentation.
F) Foam in fermentation processes and the methods for avoid it formation.
G) Stages of the recovery of product from a harvested fermentation broth.

WITH MY BEST WISHES

Prof. Dr.: A. A. Zohri



Dipolma of Applied Microbiology
Course: 510B (Hematology Part)

Time: 45 Minutes

Marks: 25

Date: September 2014



Answer the following questions:

I- Explain the relationship between intrinsic and extrinsic factors in erythropoiesis (7 marks)

II-Write on Three Only of the following (12 marks)

a- The purpose of clinical chemistry tests.

b- Types of infectious materials.

c- Markers and goals of inflammation.

d- Physiology of neutrophils.

III- Mention the relationship between the blood pressure, blood flow and resistance. (6 marks)

Good Luck

Prof. Hossam El-Din M Omar



إمتحان العام الجامعى ٢٠١٣/٢٠١٤



القسم الذى يقدم المقرر : المحاصيل - كلية الزراعة الفرقة : دراسات عليا (قسم النبات - كلية العلوم) الزمن : ٣ ساعات

أسم المقرر : إحصاء حيوى (٦٤٣ ر)

لجنة الممتحنين : أ.د. عاطف أبو الوفا أحمد ، د. الحسينى حمادة عبد العظيم المراجع الداخلى : أ.د. باهى راغب بخيت

السؤال الأول : (٢٥ درجة)

أختبر تأثير أربعة معاملات (T) من التسميد الأزوتى على نسبة السكر فى نبات قصب السكر حيث كررت كل معاملة ٥ مرات (R) وكانت نسبة السكر فى بداية موسم العصور كالتالى:

	T ₁	T ₂	T ₃	T ₄	Total
R ₁	4	14	9	13	40
R ₂	3	9	10	14	36
R ₃	7	8	12	13	40
R ₄	10	12	8	10	40
R ₅	6	12	11	15	44
Total	30	55	50	65	200

إذا علمت أن قيمة F الجدولية للمعاملات هي $F_{0.05} = 3.49$ و $F_{0.01} = 5.95$.

- قارن بين متوسطات المعاملات بطريقة L.S.D إذا كانت $t_{0.05} = 2.179$ و $t_{0.01} = 3.055$.

- هل الإستجابة للمعاملات خطية Linear إذا علمت أن:

	T ₁ = 30	T ₂ = 55	T ₃ = 50	T ₄ = 65	$\sum ci^2$
C ₁ Lin.	-3	-1	1	3	20
C ₂ Qu.	1	-1	-1	1	4
C ₃ Cub.	-1	3	-3	1	20

السؤال الثانى : (٢٥ درجة)

أجريت تجربة لدراسة تأثير الملوحة على كمية المادة الجافة بالجرام لثلاثة أصناف من فول الصويا وكانت القيم الناتجة كالتالى:

Varieties	Salinity	R1	R2	R3	R4
1	Zero	5	4	5	4
	20	5	5	6	6
	40	6	5	5	4
	60	6	4	6	6
Plot		22	18	22	20
2	Zero	6	6	5	5
	20	7	8	7	6
	40	7	6	6	5
	60	7	6	6	7
Plot		27	26	24	23
3	Zero	7	6	6	5
	20	8	9	9	8
	40	8	6	6	8
	60	9	8	8	7
Plot		32	29	29	28
Total		81	73	75	71

بأ

كسيرة

اسم

(٢)

المطلوب

- ١- حل بيانات التجربة تحليلياً إحصائياً إذا كانت مستويات الملوحة أكثر أهمية من الأصناف في الدراسة.
- ٢- ناقش النتائج وإجراء مايلزم من تغيير.
- ٣- أحسب الانحراف القياسي لمتوسط أى صنف.
- ٤- قارن بين متوسطات الملوحة بطريقة دانكن LSR إذا علمت أن:

	2	3	4
SSR _{0.05}	2.91	3.05	3.14
SSR _{0.01}	3.92	4.11	3.20

وأن

d.f.		F tab.			
		1	2	3	6
6	0.05	5.99	5.14	4.76	4.78
	0.01	13.15	10.92	9.78	8.47
27	0.05	4.21	3.33	2.93	2.43
	0.01	7.68	5.53	9.65	3.93
33	0.05	4.41	3.31	2.91	2.41
	0.01	7.49	5.25	4.37	3.56

السؤال الثالث : (٢٥ درجة)

- ١- ماهى أهمية التوزيع العشوائى والتكرار للمعاملات فى التجربة.
 - ٢- أذكر شروط المقارنات المستقلة.
 - ٣- وضح كيفية تفسير النتائج فى حالة معنوية أو عدم معنوية التفاعل فى التجارب العاملية.
 - ٤- ماهو الفرق بين تجربة عاملية 2^3 وأخرى 2×3 .
 - ٥- عرف مايلى:
- Factor, Replication, Treatment, Experiment error, Experiment units, Randomization.

السؤال الرابع : (٢٥ درجة)

- ١- إذا كان لديك متوسطات ٤ معاملات هى 8 و 12 و 10 و 33 على التوالى فأكمل الجدول التالى:

S.O.V.	d.f.	SS	MS	F _{cal}	F _{tab 0.05}	0.01
Treat. ss	3				4.07	7.59
Error ss						
Total ss	11	428				

- ٢- إذا كانت قيمة t المحسوبة هى 2.845 لمقارنة عينتين فهل قيمة F المحسوبة معنوية بمعلومية $F_{tab 0.05} = 4.41$.
- ٣- إذا كان لديك مستويين للعوامل N و P فأكمل الجدول التالى:

S.O.V.	d.f.	SS	MS	F _{cal}	F _{tab 0.05}
Rep. ss	3		1.83		3.86
N. ss		16			5.12
P. ss		2.25			
NP. ss		2.25			
Error ss					
Total ss		29			

مع التمنيات بالتوفيق،،،،،

بالحق

السيد

السيد

**Diploma of Microbiology
Especial course
Sept 2014**

**Section A
Environmental pollution (1 hr.30)
515 B (٥١٥ ن)**

Answer Two only of the following questions :

1. Write a brief account on sources and components of sewage and the processing of wastewater purification .
(30 marks)

2. Algae and bacteria stimulate each other in the sewage lagoon , both increase the purification of wastewater – write briefly on their mechanisms .
(30 marks)

3. What is meant by water pollution , give an account of each of COD and BOD and their methods of determination .
(30 marks)

Prof . M.S.Adam

Section B



MYCOTOXINS PART II (25 marks)

Answer about all the following questions

1] Complete the following (5 marks):-

- Balkan endemic nephropathy formed when the human ingested
-cardiomyopathy or Keshan disease in humans.
- Mycotoxins of gliotoxin.....
- act as (carcinogenic, hepatotoxic, mutagenic & teratogenic) agents.
- Trichothecene toxicosis.....

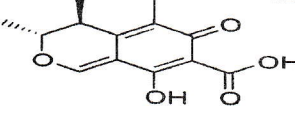
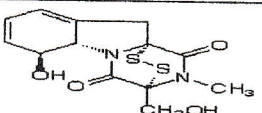
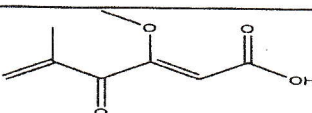
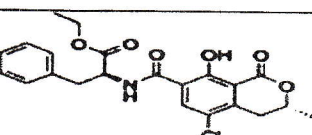
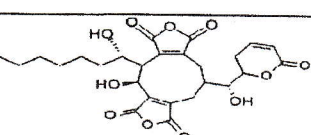
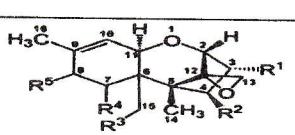
2] Answer the following statements by (✓) or (X) and correct the false statement (3 marks):-

- Detoxification of the toxic molecules producing the toxoid (.....).
- Aflatoxin is decompose at 220-360°C but penicillic acid at temperature 100°C (.....).
- Ergot alkaloids causing the convulsive and gangrenous symptoms (.....).

3] Summarized in perfect diagram ONE ONLY of the following (8 marks):-

- Different metabolic pathways for detoxification of the aflatoxin in living body's.
- Toxin controls (count only).

4] Complete the following table (9 marks):-

Mycotoxins			
Name	Aflatoxin B ₁		
Producers			
Mycotoxins			
Name		Patulin	Kojic acid
Producers			
Mycotoxins			
Name			
Producers			

With the best wishes

Prof: Eman Mostafa M.

Note: The Remain Parts of the Course are Found in the Next Papers



الفصل الدراسي: الثاني
العام الجامعي ٢٠١٣ / ٢٠١٤
امتحان مادة:



(٦٠٨ ن) الاسس الكيميائية الحيوية للوراثة

الزمن: ٣ ساعات

لطلاب الدراسات العليا - كلية العلوم - قسم النبات

قسم الوراثة

المراجع الداخلي: أ.د. عادل سيد تغيان

لجنة الممتحنين: أ.د. حمدى محمد العارف

ANSWER ABOUT THE FOLLOWING QUESTIONS:

- 1- Discuss the main factors affecting speed of migration and separation of molecules in electrophoresis. (20 marks)
- 2- Write short notes about : (30 marks)
 - a- Starch gel electrophoresis. (10 marks)
 - b- Achrylamide gel electrophoresis. (10 marks)
 - c- Pulsed field gel electrophoresis. (10 marks)
- 3- Illustrate the main steps of polymerase chain reaction, and write short notes about the PCR basic features and disadvantages. (25 marks)
- 4- What are the real time PCR ? discuss the SyberGreen and TagMan methods, their advantages and disadvantages. (25 marks)

===== GOOD LUCK =====

Special course (B629)

Time : 3 hours

Date : September 2014



كلية العلوم قسم النبات والميكروبيولوجى

امتحان طلاب الماجستير (سبتمبر ٢٠١٤ م)

Section (A)

Answer the following questions .

- 1- Discuss the various types of spore production and spore forms by members of hyphomycetes (20 degree)**
- 2- Explain only three of the following :**
 - a- Locus and conidium initial, Integrated and discrete conidiogenous cells, Name changes and nomina conservenda, Holotype and holomorph.....(10 degree)**
 - b- Criteria used for identification of members of Mucor.....(10 degree)**
 - c- Diagrammatic representation of the following :
Glomus , Sclerocystis , Acaulospora , Gigaspora ,
Entrophospora ,..... (10 degree)**
 - d- Five functions of mycorrhizal fungi.....(10 degree)**
 - e- Random amplified polymorphic DNA (RAPD – PCR)
method.....(10 degree)**

Good Luck

Prof . Dr. Sobhy Ibrahim Ismail Abdel – Hafez

Faculty of Science Botany and Microbiology Department		كلية العلوم قسم النبات والميكروبيولوجي
Special course (B629) 3 hours 100 marks		امتحان تمهيدي الماجستير العام الجامعي ٢٠١٣/٢٠١٤

1. Write short notes on: (Answer 5 only)

(50 marks)

- A. Life cycle in the Eurotiales.
- B. PCR-based methods.
- C. The development of AM fungi infection.
- D. General characteristics of Zygomycetes.
- E. Classification of the fungi.
- F. Important of mycorrhizal fungi.

2. Explain the types of spore forms and production.

(20 marks)

3. Differentiate between: (Answer 3 only)

(30 marks)

- A. *Mucor circinelloides* and *Mucor racemosus*.
- B. *Eurotium amstelodami* and *Eurotium chevalieri*.
- C. Ectoendomycorrhiza and ectomycorrhiza.
- D. *Aspergillus flavus* and *Aspergillus clavatus*.

With My Best Wishes (Prof Dr. Magdy Bagy)

Bagy

Assiut University
Faculty of Science-Botany Department
Exam for post graduated students

Bacteriology : 615N
2014-2015
Time allowed : 3 hours
Final degree : 100 Marks

Answer The following Questions :

**1) Compare and differentiate between each of the following
(30 Marks)**

a) Flagellum & Types of pilli .Their functions (5 Marks)

b) Cell wall (murein) and plasma membrane (chemical structure and function). (5 Marks)

c) What are the major similarities and differences between *Rhizobium* and *Frankia* ..? How is C_2H_2 useful for studies of N_2 -fixation (10 Marks)

d) What is the growth factor analoge? How does it destroy microorganisms ?Describe the mode of action? (10 Marks)

2) a) Differentiate between:

Transformation & Generalized Transduction (10 Marks)

b) The different methods by which the viable cell counts be determined. (10 Marks)

c) Mode of action of: Tetracycline-Temperature- O_2 as a physical factor affecting growth (10Marks)

3) List the requirements for the formation , cloning and selection of recombinant DNA..... (10 marks)

4) What function does the C_{55} - Lipid-carrier portion of the building block serve..? Illustrate its role and mode of action of antibiotics affecting this stage of biosynthesis in both Gram positive and negative bacteria..? (15 Marks)

**5)Describe the bacterial cell structure contribute to:-
(15 Marks)**

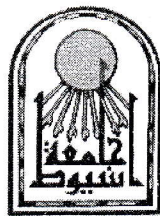
A) Protection of cell from phagocytosis.

B) Buoyancy (floatation)

C) Organisms responsible for biological importance of Insects

Prof.A.A.M.shoreit

Assiut University
Faculty of Science
Department of Botany and
Microbiology



جامعة أسيوط
كلية العلوم
قسم النبات
والميكروبيولوجي

Special course (629 B) for M Sc Students

Final exam: 15th September 2014

Time allowed: 3 hours

Answer the following three questions

(100 marks)

I) Give short accounts on 4 only of the following (50 marks, 12½ each)

- 1) Taxonomy of the genus *Aspergillus* and its related teleomorphs?
- 2) Various isolation techniques of fungi from different sources?
- 3) Identification media and methods for identification of *Penicillium* and *Fusarium*?
- 4) Give the main microscopic differences between *Aspergillus flavus*, *A. parasiticus* and *A. ochraceus* with special reference to their ecology and toxigenicity?
- 5) Selective isolation of fungi?

II) Write accounts on 4 of the following: (40 marks, 10 each)

- 1) The microscopic differences between species of the genera *Emericella* and *Neosartorya*?
- 2) Techniques for isolation of heat-resistant fungi?
- 3) Distinctive properties of fungi within the subkingdom Zygomycota?
- 4) Estimation of fungal biomass?
- 5) Different preservation methods of fungi?

III) What is meant by..... (answer 5 only) (10 marks)

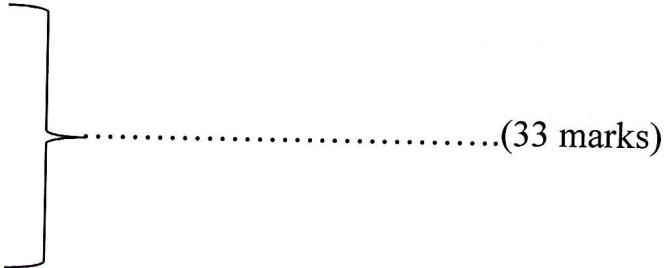
- 1) Extremophilic fungi.
- 2) Hulle cells.
- 3) Gymnothecium.
- 4) Holomorph.
- 5) AFPA & coconut agar medium.
- 6) Polyphialides.

Best Wishes

(15/9/2014)

Professor Mady Ahmed Ismail

Answer THREE questions only

- 1- Describe with diagrams the successive processes involved in DNA replication focusing on the role of replication enzymes.....(34 marks)
 - 2- Give an account of the different types of RNAs and the way by which these acids are transcribed.....(33 marks)
 - 3- Give short account of:
 - a- Methods for DNA extraction from fungi
 - b- Basic local alignment search tool (Blast).....(33 marks)
 - 4- With suitable illustrations discuss the process of gene sequencing with special reference to the structure and role of :
 - a- Oligonucleotide Primers
 - b- Polymerase
 - c- Thermal cyclers
 - d- dd NTPs
 - e- dNTPs.....(33 marks)
-

Best wishes

Prof Dr. A. M. Moharram

Assiut University
Faculty of Science
Botany and Microbiology
Department



جامعة أسيوط
كلية العلوم
قسم النبات والميكروبيولوجي

Special Topic M.Sc. Exam. September 2014
Time allowed: 3 hours

Answer the following questions:

1. Fungi release numerous exozymes into their outer medium in order to hydrolyze large molecules (cellulose, protein, starch, etc.) rendering them absorbable. Write on the different methods of concentrating proteins actually dilute in large amounts of water or culture media; pointing out to the relevance of each.
2. Among the various methods applied to separate proteins from aqueous media, ion exchangers are of particular importance in your study. Write on the different types of ion exchangers; pointing out to the advantages of each.
3. Recovery of proteins from ion exchange resins using different elution buffers, explain.

Refat 2014
9/6

Best Wishes
Prof. Dr. Refat Abdel-Basset

Mineral Nutrition

Time allowed: 3 hours

Answer the following questions.

1- Discuss each of the following:

- The water culture technique.
- The soil as a source of nutrients.
- Chemical fertilizers in crop production.
- Foliar nutrition.

2- Explain diagrammatically the ions transport processes and mechanisms in plant cells and tissues.

3- Some inorganic nutrients undergo intensive metabolic transformation during their conversion from inorganic to organic form, whereas others do not. Explain.

أ.د. أحمد فرج راضي

Assiut University
Faculty of Science
Botany and Microbiology Department

Exam.:Deplom of Microbiology (September ..2014)

Soil Microbiology and Microbial Toxins.....Time allowed:...3hours

Answer the following Questions

A-Soil Microbiology.....(30 Mark)

1-Give an accounts of each of :.....(10 marks)

- a- The dilution plate method for isolation of soil fungi
- b- The effect of temperature on the microorganisms growth .

2-Discuss in details the following statement:.....(10 marks)

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.

3-Explain in details each of: :.....(10 marks)

- a- Benefits of fungi in the medicinal and pharmaceutical drugs.
- b- Baiting technique for isolation of fungi from different sources

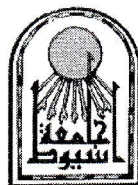
Good LuckProf. Dr.M.B. Mazen

B-Microbial Toxins.....(30 Mark)

Prof. Dr.H.A Hassan
Prof Dr. Eyman Mostafa



Assiut University
Faculty of Science
Botany & Microbiology
Department



جامعة أسيوط
كلية العلوم
قسم النبات
والميكروبيولوجي

Postgraduate students
Host-parasite relationship

Final ex. 2013/ 2014
Time allowed: 2 hours

I-Give an account on three only of the following: (30 Marks)

- 1- Overgrowth as symptoms associated with hypertrophy and hyperplasia.
- 2- Effect of the pathogen on host reproduction.
- 3- Inoculation.
- 4- Histological defense.

II- Write briefly on three only of the following: (30 Marks)

- 1- Direct infection, giving examples.
- 2- Plant surface characters as barriers against pathogen penetration.
- 3- Survival of plant pathogen by dormant spores and other structures in or on the host.
- 4- Toxic materials produced in response to infection as post-infection biochemical defense.

III-Write on four only of the following: (40 Marks)

- 1- Effect of the pathogen on uptake and translocation of water by host xylem vessels.
- 2- Direct dispersal of plant pathogen.
- 3- Tissues disintegration as harmful effect of infection on host physiology.
- 4- Classification of plant diseases according to their occurrence.
- 5- Effect of the pathogen on host respiration.

Best Wishes

Prof. Kh. M. Abdel-Gawad
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