Mansoura University
Faculty of Science
Math. Dept.
BIOSTATISTICS (٢٠١ ر)

Exam : Jan. 2012
Time : 2 hours
3th-year *
Date: 27 / 12 / 2012

Answer the following questions: (Total: 80 Marks)

[1] a-The following table is a random sample of weights of 80 students in kg

Weights	20-	30-	40-	50-	60-	70-
No. of Students	**20**	**15**	**20**	**12**	**8**	**5**

Find: i) median. ii) mode. iii) standard deviation. (21 Marks)

b- Find the coefficient of variation (C. V.) for the following data:
-2, -8, -6, 0, 4, 6, 10, 14, 12, 20. (9 Marks)

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[2] a- A random sample of 100 students shows that 20 of them are smoking regularly. Find 99% confidence interval for the proportion of the smoker students. (10 Marks)

b- Suppose that 4% of the glasses made by a certain machine will be defective in some way. If 10 glasses made by this machine are selected randomly, find

i) The probability that none of them is defective, and how many would we expect to be defective?

ii) The probability that at least 2 will be defective. (10 Marks)

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[3] a- A sample of size 16 is drawn from a normal population with mean $\mu = 200$ and variance 36. Find the probability that the sample mean will be less than 199. (10 Marks)

b- The contents of 10 similar containers of sulfuric acid are 6, 8, 9, 10.2, 10.4, 9.5, 10, 10.5, 5 and 9.2 liters. Find 95% confidence interval for the mean of all such containers, assuming an approximate normal distribution. (10 Marks)

c- If X is a random variable which has the probability distribution

x	1	2	3	4
P(x)	*a*	0.2	0.3	0.1

Find i) the constant *a*. ii) E(3X+1). iii) Var (X). (10 Marks)

$(z_{0.005} = 2.58, z_{0.01} = 3.32, t_{9,0.025} = 2.262, t_{10,0.025} = 2.228, \phi(0.67) = 0.75, \phi(1.67) = 0.98,$
$P(0 \le z \le 0.67) = 0.32, P(0 \le z \le 0.89) = 0.45).$

* برامج - شعب (فيزياء حيوي ، علوم بيئة ، كيمياء ونبات . كيمياء وحيوان ، ميكروبيولوجى)

تمنياتنا بالتوفيق.

د. بيه الدسوقى- د. عديلة عثمان - د. محمد جاد- د. فاتن شيحة

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جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
First Term: Jan. 2012

Educational Year:Third Level **Program (Branch): Microbiology**
Subject: Bot. (305)M **Course(s): Fungi**

Time: 2 hrs **Date: 9 / 1 /2012** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

1- Write on:
a- Slime molds . (10)
b- Basis of classification of the order Mucorales to its families . ((10)

2-a-Distinguish among the Hemiascomycetidae , Plectomycetidae and Hymenoascomycetidae . (10)
b-Describe the sexual reproduction in *Peziza* . (10)

3-a-What is dikaryotisation ? Write on the various methods of dikaryotisation in Basidiomycetes . (10)
b-Describe the life cycle of *Agaricus* . (10)

Examiners:

Prof. D.Salah el Dohlob

Prof.D.Fatma Migahed

المستوى الثالث - ميكروبيولوجي - م ٢٠٤ . كيمياء حيوية نباتية

Mansoura University
Faculty of Science
Botany Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
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المنصورة - مصر

Final Examination in Botany
First Term: Jan. 2012

Educational Year: Third Level **Program (Branch): Microbiology**
Subject: M(304) **Course: Plant Biochemistry 1**
Time: 2 hrs **Date: 9 /1 /2012** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Q1 Discuss the biosynthesis of each of the following:

a- Asparagin. (7marks)
b- Sucrose. (7marks)
c- Triacylglycerols. (6marks)

Q2 What do you know about:

a- Rancidification. (5 marks)
b- Z scheme in light reaction. (5 marks)
c- Plant lipid extraction and analysis. (5 marks)
d- Oxidative decarboxylation of pyruvate (5 marks)

Q3 Explain the following sentence:

a- Nitrogen fixation is carried out by the rhizobium- legume symbiosis in the root nodule. (5 marks)
b- Herbicides act by affecting lipid metabolism. (5 marks)
c- Prenol lipids act as antioxidant. (5 marks)
d- Cellulose and hemicelluloses as a structural polysaccharide. (5 marks)

Examiners: Prof. Omer El-Shahaby Prof. Samia Haroun

٣ ميكروبيولوجي - علم الوراثة + التركيب الدقيق للخلية (٢٠٢٣)

Mansoura University
Faculty of Science
Botany Department
El-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany **First Term: Jan. 2012**

Educational Year: Third Level **Program (Branch): Microbiology**
Subject: M(303) **Course(s): Microbial Genetics and Cell ultra-structure**
Time: 2 hrs **Date: 5 / 1/2012** **Full mark:** 60 **Question mark: 20**

Q1 : Compare between the following :

a. Natural and induced competence (5 Marks)
b. Generalized and specialized transduction (5 Marks)
c. Gene mapping in bacterial and viral chromosome (10 Marks)

Q2 (A): Answer each of the following either true or false and correct the false ones: (10 Marks)

1- Primer is a short stretch of DNA that synthesized by DNA polymerase.
2- The information necessary for phage attachment and injection of its chromosome is directed by the viral protein.
3- Not all bacteriophges are capable of inducing transduction.
4- Abortive transduction occurs when a transducing phage fails to integrate into the bacterial chromosome.
5- The leading strand is synthesized from 5′ to 3′ whereas the lagging strand is synthesized from 3′ to 5′.
6- A lysogenic bacterial cell is that contained F plasmid integrated into its chromosome.
7- The leading strand needs a single primer whereas the lagging strand needs a number of primers equal to okazaki fragments.
8- An F- cell usually remains F- after the conjugation with an Hfr cell.
9- The double helix of DNA makes a turn every 10 kbp.
10- The length of each turn in the double helix is 34A°.

Q2 (B): Discuss only 5 from the following : (10 Marks)

1- Astral and Anastral mitosis. 2- Lysosome types 3- Unit membrane concept
4- Plastid Inheritance 5- Kranz-anatomy type 6- Chromonema

Q3: Complete all the following : (20 Marks)

1- The best plant material for studying mitosis …….. of ……. plant.
2- DNA replication takes place in …… phase whereas the decision occurs in …….. phase.
3- Golgi apparatus in association with ……, ….., ……and …….. form endomembrane system.
4- Vacuole contains …… and enclosed by vacuolar membrane called ……..
5- ……. act as a cement between the adjacent cells and …….. mentain yhe cytoplasmic continuity between them.
6- …… is a plastid type which stores lipids, whereas Amyloplast stores …… .
7- Polysomes are aggregation of …….. connected by …….. during ……
8- The first stable compound during photosynthesis in C3 …… whereas in C4 is ……
9- Plastid inheritance in Angiosperm is …….. but in Gymnosperm is ……..
10- the main functions of lysosomes are ……., ……., ……,…….. and ……

God help you

Examiners: Dr. Linda Z. Samaan **Dr. Ashraf A. M. Elsayed**

المستوى الثالث - ميكروبيولوجي - (م ٢٠١٢) علم الفيروسات والمناعة

Mansoura University
Faculty of Science
Botany Department
Mansoura - Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة- مصر

Final examination in Botany
First Term Jan. 2012

Educational Year: Third level **Program (Branch):** Microbiology
Subject: M 302 **Course:** Virology - Immunology
Time: 2hrs. **Date:** 2/1/2012 **Full mark:** 60 **Question mark:** 20

Answer the following questions (الامتحان في ثلاث صفحات)

Q1):-

With clear labeled diagram and commentary notes describe only THREE of the following (a is obligate) :- (20 Mark)

a- The architecture (morphological classes) of bacterial viruses. (7 Mark)
b- Chick embryo technique for viral cultivation. (6.5 Mark)
c- Chemical nature of viral protein with respect to types and functions. (6.5 Mark)
d- Only one tool of virus purification and outline the criteria of purity. (6.5 Mark)
e- The discriminative feature of the viruses related to nutrition and replication, mention one viral definition. (6.5 Mark)

Q2):-

A): **True and false (circulate the correct response); correct simply the wrong one (5 Mark)**

1- (T – F) Bacteriophages were named by Towrt ----------
2- (T – F) Viral cultivation means support replication outside living system.----------
3- (T – F) Based on types of nucleic acids viruses may be classified into two groups.----------
4- (T – F) The earliest recorded plant viral disease was mosaic by Carlos Closus----------
5- (T – F) Viral cultivation means support replication outside living system.----------

B): **Chose the most correct answer (5 Mark)**

1- The viral purity can be determine--------
a) biologically b) chemically c) physically d) all

2- Wood-rouf and Good-pasture used for ------ virus cultivation
a) plant b) bacterial c) insect d) animal

3- Viral symmetrical pattern may be ----------.
a) helical b) icosahedral c) a and b d) a and/or b

4- ---------- animal viruses have outer envelope.
a) No b) Some c) All d) Most

5- Viruses may be present in crystal form ------- the host.
a) outside b) inside c) a and b d) none

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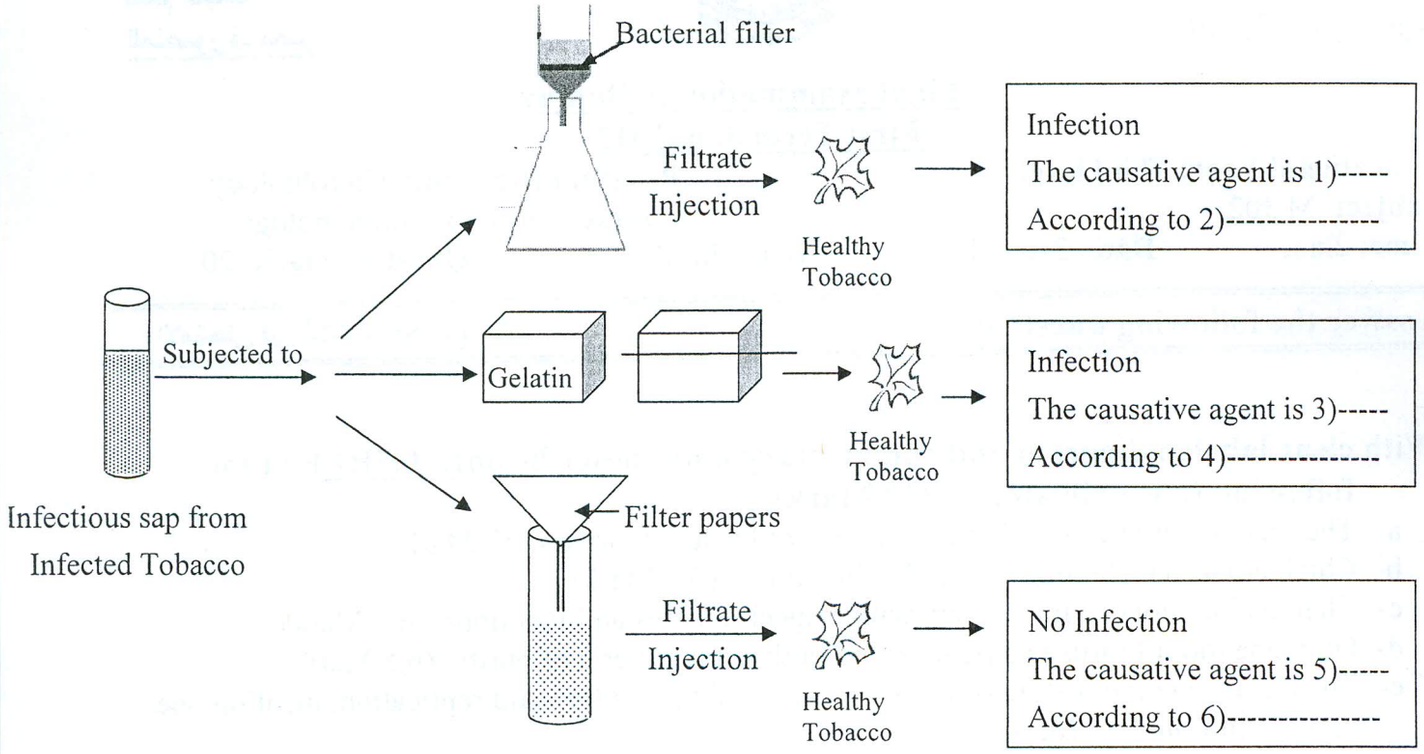
C) : Complete the next diagram:- **(6 Mark)**



D): Prove that: Only nucleic acid is the genetic information carrier in viruses.(4 Mark)

Q3):

A): Choose the most correct answer (5 Mark)

1. Immunological memory is a feature exhibited by:-

A. Cell mediated immunity B. adaptive immunity
C. Humoral immunity D. innate immunity

2. Which of the following cells has the capacity to produce antibodies during immune response

A. T-helper cell B. plasma cells
C. memory cells D. all the above

3. If you were given a sample of serum patient protein, you could determine its type by examining the amino acid sequence of

A. constant region B. variable region
C. determine either A or B D. Determine both A and B

4. All three complement pathways will be severely affected by a deficiency of:-

A. C1 B. C2 C. C3 D.C4

5. When we use the horse antibodies to protect patient against certain infection this was example of therapeutic use of :-

A- active immunity B- passive immunity
C- adaptive immunity D-innate immunity

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6. **Complement component (s)which recruit (s) neutrophils to a site of inflammation:-**

A. C3a and C5a
B. C1 and C4
C. C3b and C4b
D. Manan-binding lectin (MBL)

7. **Negative selection of B cells in the bone marrow <u>does not</u> result in:-**

A. Cells that can not recognize self antigens
B. Cells that recognize self antigens
C. Apoptotic cells
D. None of the above

8. **The target of the complement activity is determined by:-**

A. cytokines concentration
B. specific antibody-antigen reactions and location
C. both A and B
D. none of the above

9. **Function of the complement includes**

A-opsonises and enhances phagocytosis
B- Triggers cellular functions that contribute to inflammation
C- facilitates direct lysis of bacteria, some viruses and cells
D- all of the above

10. **Differences between the MB lectin and classical complement pathway:-**

A. C4b and C2b form C3 convertase
B. C3 convertase generate C3b and C3a
C. C1 cleaves C2 into C2b and C2a
D. bind to surface of certain pathogen

B): <u>True or false and repair the false sentences:-</u> (3 Mark)

1- Activation of adaptive immunity is required for initiation of innate immune reactions.
2- Passive immunity is one example of humoral immuniy.
3- An IgG antibody is likely to show a higher avidity for a given antigen than an IgM antibody of similar affinity.

C): <u>Complete each of the following sentences:-</u> (6 Mark)

1- The body's first line of defense against microorganisms include---------.
2- The primary cell of immunity is---------.
3- -------- cell stimulates both cell mediated and humoral immune response.
4- M.H.C. class I antigens are found on all cells except---------.
5- In contrast with the inflammatory response, the immune response--------.
6- The type of immunity is conferred when an individual is given a vaccine is ---------.

D): <u>Answer each of the following as requested:-</u> (6 Mark)

1- How do natural killer cells differ from Tc, Ts and M.A.C. **(2 Mark)**
2-Detect the role and type of each of the following as defense mechanism in body? **(2 Mark)**
Lacrimal apparatus, perspiration and transferrins.
3- Detect the differences between process of phagocytosis and inflammation. **(2 Mark)**

With our best wishes

Examiners:- ***Dr. <u>Adel A. Al-Morsi</u>*** ***Dr. <u>Ahmed El-Shobaky</u>***

المستوى الثالث - ميكروبيولوجيا - (م ٣٠١) بيولوجيا البكتريا

Mansoura University

Faculty of Science

Botany Department

EL-Mansoura, Egypt

جامعة المنصورة
كلية العلوم
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Final Examination in Botany

First Term: Jan. 2011

Eductional Year: Third Level — Program: Microbiology

Subject: M (301) — Course: Biology of Bacteria

Time: 3 hrs — Date: 29-12-2011 — Full Mark : 60 — Question Mark:20

Answer the following questions:

1.a.Discuss the morphological and physiological changes which occur during endospore formation of bacteria showing the characters of mature endospore (13 Mark).

b.Define generation time and discuss the factors affecting the generation time of bacteria (7Mark).

2.Compare between each of the following pairs:

a.Cell wall of Gram-positive and Gram-negative bacteria showing the chemical structure of murein (10 Mark).

b.Active and passive transport of nutrients (10 Mark).

3.Discuss each of the following:

a.Shape and arrangement of bacteria (6 Mark).

b.Chemical structure and function of glycocalyx in bacteria (8 Mark).

c.Methods of asexual reproduction in bacteria (6 Mark).

Examiner: Dr. Attiya Mohamedin

المستوى الثالث - ميكروبيولوجي - (٢٠١٢) التحليل الحجمي الوزني طرق الفصل الكروماتوجرافي

Mansoura university
Faculty of science
Chemistry Department
Subject: Analytical Chemistry
Course: Volumetry, Gravimetry and Chromatography

3rd level Microbiology
Date: Jan. 2012
Time allowed: 2 hours
Full mark: 60 mark

Answer the following questions

1- Calculate the mean, confidence limit of five determinations 57 , 57.5 ,55 , 56 ,and 61 ($s = 0.02$, $t_s = 2.5$, $Q_t = 0.05$) .Does the value 61 rejected or not ?.

2- Calculate the molarity of 40 % HCl (w /w) and has a density of 1.02 g/ml . Find the volume needed to prepare 500 ml of 0.20 M HCl .

3- Define buffer solution , what is its constituents , give example of acidic and basic buffer solution , explain how buffer solution resist the change of pH .

4- Explain Volhard method for detecting the end point in argentometric titration.

5- In titration of 50 ml of tap water with 0.012M EDTA using EBT indicator , 31.63 ml of EDTA was needed to reach the end point . Calculate concentration of cacium expressed as **ppm** (mg /l) .

6- Discuss the requirements should be met in order a gravimetric method be successful .

7- 0.2gm of impure table salt dissolved in water , Ag^+ was added ,AgCl precipitate was filtered , dried and weighed 0.12 gm .Calculate the purity degree of salt (Na =23 , Cl =35.5 ,Ag =108)

8- A 10 mL solution containing Cl^- was treated with excess $AgNO_3$ to precipitate 0.4368 g AgCl. Calculate the molarity of Cl^- in the unknown.

9- 20 ml aqueous solution of Beuteric acid 0.1 M was extracted by 10 ml ether after shaking and separation , 0.4 m mole of the organic acid remain unextracted .Calculate (%) extraction efficiency of separation ? .

10- The following data were obtained for two components (A and B) separated on 20-m capillary column . For component A , t_r = 8.o4 min., w = 0.15 min. ,Forcomponent B t_r =8.26 min. , w =0.15 min .Calculate a) Number of the theoretical plates (n) b) Height equivalent to theoretical plate (H). C) Resolution .

11- Sketch the basic components of GC instrument . Discuss only two detectors used in GC . (10 marks)

Dr. Mohamed El-defrawy

With best wishes