المستوى الثالث - ميكروبيولوجي - علم الوراثة الميكروبية التركيب الدقيق للخلية ٢٠١٣م

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., 2014

Educational Year: Third Level — Program (Branch): Microbiology
Subject: (M303) — Course(s): Microbial Genetics and Cell Ultrastructure
Time: 2 hrs — Date: 23 / 12/2013 — Full mark: 60

Q1 A : Discuss the following (10 Marks):

1- Lederberg and Tatum experiment (5 Marks)
2- Gene mapping of viral chromosome (5 Marks)

B- Compare between each pair of the following (10 Marks):

1- Generalized and specialized transduction. (4 Marks)
2- Intergenic and intragenic mutation suppression. (3 Marks)
3- Replication of leading and lagging strands. (3 Marks)

Q2 A : Complete the following with suitable word or phrase: (10 Marks)

1- The critical step in excision repair is the action of ..... enzyme which is controlled by ..... genes which are .....
2- Base substitution may leads to either a different amino acid and this is called ..... mutation or termination of polypeptide synthesis which is known as ..... Mutation.
3- The normal pairing of adenine and thymine occurs when adenine is in ..... form and thymine is in ..... Form.
4- Frameshift mutations can be suppressed when a base is ..... or .....
5- When thymine base is found in enol form it pairs with ..... and when cytosine is in imino form it pairs with .....
6- A molecule comprising the pentose sugar joined to a base is called ..... which is converted into ..... By attachment of .....
7- ..... Only affects the replicating DNA whereas ..... and ..... Can affect replicating and non replicating DNA.
8- 2- aminopurine is analogue to ..... and when it is changed into ....., it pairs with ..... And may leads to ..... Mutation.

B: Compare between the following pairs : (10 Marks)

1- Plastidic and mitochondrial compartments and unique components (4 Marks)
2- Euchromatin and Heterochromatin (3 Marks)
3- Microsomes and Microbodies (3 Marks)

Q3: Discribe all the following : (20 Marks)

1- Types of ER arrangements. (3 M.)
2- Membrane transformation by Golgi bodies(3 M.)
3- C4 plants (3 M.)
4- Origin of mitochondria (3 M.)
5- TIC and TOC Translocons (4 M.)
6- Endocytosis (4 M.)

God help you

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

المستوى الثالث - ميكروبيولوجي - كيمياء حيوية نباتية ٢٠١٤

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جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
First Term: Jan. 2014

Educational Year: Third Level **Program (Branch): Microbiology**
Subject: M(304) **Course: Plant Biochemistry 1**
Time: 2 hrs **Date: 30 /12 /2013** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Q1 Discuss each of the following:

a- Glutamate synthesis. (7marks)
b- Pentose phosphate pathway. (7marks)
c- Hatch and Slake photosynthesis. (6marks)

Q2 What do you know about:

a- Enzyme oxidation of IAA. (5 marks)
b- Fatty acids elongation. (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- Light independent reactions. (5 marks)
d- Regulation of citric acid cycle and lipid synthesis.(5marks).

Examiners: Prof. Samia Haroun Prof. El-Shahaby O.E.

المستوى الثالث - ميكروبيولوجي - علم الفطريات م ٣٠٥

Mansoura University
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جامعة المنصورة
كلية العلوم
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المنصورة - مصر

Final Examination in Botany
First Term: Jan. 2014

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

Time: 2 hrs **Date: 30 /12 /2013** **Full mark: 60** **Question mark: 20**

Answer the following questions:

1- Write on:
a- Structure and life cycle of ***Agaricus*** . (12)
b- Germination of oospore of ***Pythium***. (8)

2- Give an account of each of the following :
a- Sexual reproduction of ***Peziza*** . (10)
b- Spermagonial stage . (5)
c- Clamp connection .(5)

3-a-Write on the sexual reproduction of Ascomycetes . (10)
b-Discuss the basis of classification of the order Mucorales to its families . (10)

Examiners:

Prof. D.Salah el Dohlob

Prof.D.Fatma Migahed

المستوى الثالث - ميكروبيولوجي - بيولوجيا البكتريا م ٣٠١

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

جامعة المنصورة
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المنصورة - مصر

Final Examination in Botany
First Term: Jan. 2014

Educational Year: Third Level **Program (Branch): Microbiology**
Subject: M 301 **Course: Biology of Bacteria**
Time: 2hrs **Date: 2 /1 /2014** **Full mark: 60** **Question mark: 20**

Answer the following questions:

I.Compare between each pair of the following:

1.Cell wall of Gram-positive and Gram-negative bacteria (8 marks).

2.Lag phase and log phase of bacterial growth curve (4 marks).

3.Phenetic and phylogenetic classification of bacteria (3 marks).

4.Synchronous and continuous culture (5 marks).

II.Give abrief account on:

1.Effect of pH on bacterial growth (7 marks).

2.Mesosome (5 marks).

3.Properties and formation of mature bacterial endospore (8 marks).

III. a.Define morphology of bacteria and discuss the shape and arrangement of bacterial cells (5 marks).

b.Define taxonomy,enumerate and write briefly on chemotaxonomy as a criterion for classification of bacteria (8 marks).

c.The bacterial cell is a prokaryotic cell. Discuss (7 marks).

Examiner: Dr. Attiya Mohamedin **Prof.Dr. Yehia Osman**

٣ ميكروبيولوجي ٣٠٢ علم الفيروسات وتناعة

Mansoura University
Faculty of Science
Botany Department
Mansoura - Egypt

جامعة المنصورة
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Final examination in Botany
Second Term May 2014

Educational Year: Third level **Program (Branch):** Microbiology
Subject: M (302) **Course:** Virology - Immunology
Time: 2hrs. **Date:**9/1/2014 **Full mark:** 60 **Question mark:** 20

Answer the following questions (الامتحان في ثلاث صفحات)

Q1):

A): Chose the most correct answer (4 Mark)

1- The earliest recorded plant viral disease was --------- by Carlos closus
a) broken b) poliomyelitis c) mosaic d) dwarf

2- Bacteriophages were discovered by ----------
a) Towrt b) D"herell c) a and b d) none

3- Based on types of nucleic acids viruses may be classified into ---------- groups.
a) one b) two c) three d) none

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

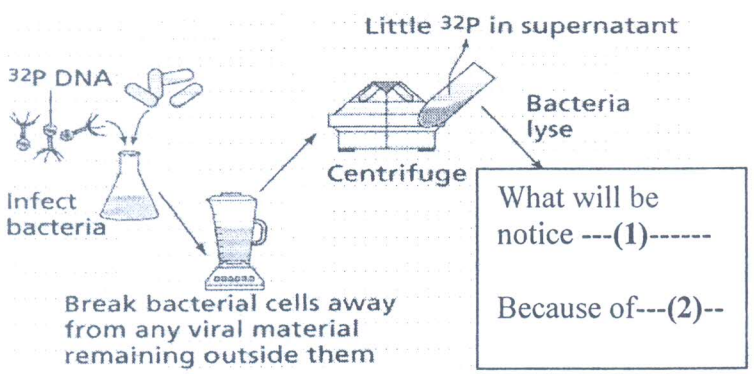
B): True and false (circulate the correct response); correct simply the wrong one (4 Mark)

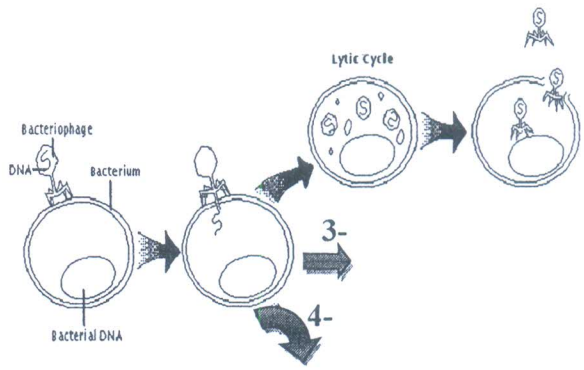
1- (T – F) **Viroid** a group of proteinaceous infectious agent that cause diseases to animals only
2- (T – F) Bacteriophages were classified into five morphological group.
3- (T – F) Viral cultivation means support replication outside living system.
4- (T – F) All animal viruses have outer envelope.

C): Fill the gaps in the following sentences (4 Mark)

1 ---------- refer to cancer causing viruses which firstly discovered by Rous.
2- Viruses are metabolically inert due to absence of----------, ---------- and ---------.
3- Based on Lwoff and Tournier, viruses are entities differ from other micro-organisms in ----------,----------,----------,---------- and ----------.
4- Viruses are used as a very powerful tool in the molecular biology field because of-----,-----and-----

D): Complete the next diagram: (4 Mark)





E): Prove that: Viruses are filterable agents. **(4 Mark)**

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Q2): Give a brief account with illustrations on <u>THREE only</u> of the following (a is obligate):-

a- Filteration and spectrophotometery as tools of virus purification and criteria of purity, respectively. **(8 Mark)**

b- Lysis cycle for viral replication. **(6 Mark)**

c- Chemical nature of viral protein with respect to structure, types and function. **(6 Mark)**

d- Viral cultivation using organized tissue. **(6 Mark)**

Q3):

A): <u>Choose the most correct answer(s)</u> (7.5Mark)

1-An antigen is .....

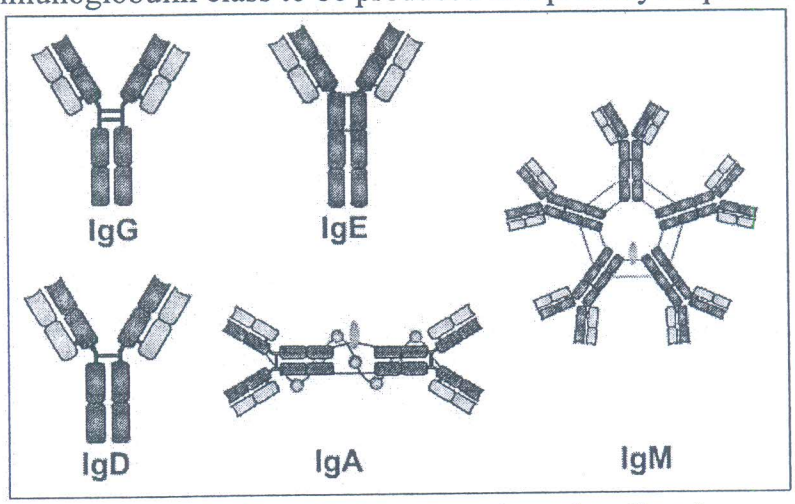
a-highly specific protein produced by the body in response to foreign body

b-chemical that inhibit growth of microorganisms

c-antibody that produced by the body that stimulate the production of antibody by the body immune system

d-cheimcal substance that stimulate the production of antibodies by body immune system

2-which is the first immunoglobulin class to be produced in a primary response to an antigen?



3-in an immune response the type of cells which is get activated earliest is…

a-killer T cell b- plasma cells c-Helper T cells d-Effector cytotoxic cells

4-An epitope associates with which part of an antibody…

a-Antibody binding site b- heavy chain constant regions only

c-variable regions of heavy and light chains combined d-light chain constant regions

5-Humoral immunity is mediated by..

a-macrophage b-B cells c- phagocytes d-both a & b

6-Humoral immunity is also called.....

a-antibody mediated immunity b-antigen mediated immunity

c-non specific immune response d- all of these

7-antibodies clear out antigens by.....

a-agglutination b-precipitation c-neutralization d-all of these

8-The phenomena of selective proliferation of B cells in response to their interaction with the antigen is called.....

a-clonal expansion b-monoclonal selection c-clonal proliferation d-clonal selection

9-The specific targeted responses constitute the third line of defense in response to an infectious agent and is called as

a) third line of defence b) adaptive immunity

c) acquired immunity d) all of these

فضلا تابع التالى

10- The characteristics of adaptive immunity include

a) specificity b) immunologic memory

c) discrimination of self from non self molecules d) all of these

11- 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)

12- When we use any animal 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

13- Negative selection of B cells in the bone marrow does not result in:-

A. Cells that can not recognize self antigens B. Cells that recognize self antigens

C. Apoptotic cells D. None of the above

14- 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

15- In the late 19 century, some Scientists used horse anti-diphtheria toxin antibodies to protect children from this deadly infection. This was an early example of the therapeutic use of:

a) active immunity b) passive immunity

c) adoptive immunity d) innate immunity

B): Complete each of the following sentences with suitable word(s):- (9 Mark)

1-If a person has resistance to a disease from natural exposure to an antigen, the person has form of immunity called .....

2-Classical complement pathway is activated by..... while alternative pathway is activated by.....

3-Complement activation cascade include.....

4-The complement system is not adaptable as.....while is adaptable when.....

5- The body's second line of defense against microorganisms include---------.

6- The primary cell of immunity is---------.

7- The type of immunity is conferred when an individual is given a vaccine is ---------.

8- Passive immunity is one example of .....

9- An .....antibody is likely to show a higher avidity for a given antigen than an IgG antibody of similar affinity.

C): Answer each of the following questions as requested:- (3.5 Mark)

1- What are the most potent functions of MHC proteins?(1.5 mark)

2- How do Tc differ from Ts and M.A.C. (2 Mark)

With our best wishes

Examiners:- Dr. Adel A. Al-Morsi *Dr. Ahmed El-Shobaky*

التحليل الحجمى والوزنى ٣١٤

المستوى الثالث - كيمياء حيوية - كيمياء نبات - بيولوجى

Mansoura University Faculty Of Science Chemistry Department Subject : Analytical Chemistry Course(s): 314 C.		3th. Year Botany, Micro Bio & Zoology/ Chemistry Program: Chemistry Date: 16-Jan 2014 Time Allowed: 2 Hours Full Mark: 60Marks

Answer The Following Questions

Section a (30 Marks)

a)*Define only 5 of the following*: (10 Marks)

1-R_f 2-$K_{d.}$ & α 3-H (height equivalent to theoretical plate)
4-D_c (distribution a ratio) 5-D_v , V_{max} 6- Affinity Chromatography

7-Gel Chromatography .

c) Write short notes on only one of the following (5 Marks) :

1-Application of ion exchanger chromatography, its fundamental requirements, types. What is meant by separation factor and capacity?

2-Types of Paper – thin- layer chromatography , its Detectors .

d) One gram of benzoic acid originally dissolved in 100 ml of water is to be equilibrated with 100 ml of ether . K_d is 100 , K a is 6.5×10^{-5} . Calculate the D at pH3, 5 , 9. *(5 Marks)*

e) Three analysts were separated on a column of 3 cm length at 0.5, 0.6 and 0.65 minutes with 3, 2 and 5 sec beak widths, respectively. Calculate n , H, and R. Comment on the results. (5 Marks)

f)-Give illustrative figures for GC or HPLC and discuss the detectors used in each *(5 Marks)*.

Good Luck Prof.. Dr. A. El-Wakil & I. Kenawy.

Volumetric and Gravimetric Section (30 marks)

Q3- (15 marks)

a) In the Titration of 50 ml of 0.1M HCl with 0.1M NaOH .Calculate the pH of the solution after the following additions , 0.0 ,10.0 ,50.0 and 60.0 ml of the base .

b) Calculate the Ksp value for Ag_2CrO_4, its solubility 2.5 $x10^{-2}$ g/l (Mol.wt. =322).

c) Find the molarity of 1.4g/l HCl .

Q4-(15marks)

a) Discuss the following **(Choose three only)**

i) Nernest Equation in Oxidation Reduction Reactions.
ii) Metallic indicators in EDTA titrations.
iii) Q-Test for analytical data.
iv) Peptization in gravimetry .
v) pH- range in acid base indicator .

b) Put (V) or(X) on the following statements and **explain why:**

i) $KMnO_4$ is a self indicator in $KMnO_4$ titrations.

ii) The M-indicator complex must be more stable than M-EDTA complex in complexometric titration.

iii) Mohr method must be carried out in acidic medium in precipitation titrations.

c- Explain how Ca^{2+} and Mg^{2+} are determined in drinking water sample by EDTA titration.

المستوى الثالث - مجموعة البيولوجي - الإحصاء الحيوي ٢٠١٤ + الفيزياء الحيوي

Mansoura University Faculty of Science Maths department Subject: Biostatistics (R301)		Exam: Jan 2014 Third Year Programs * Date : 23 – 1 - 2014 Time allowed :2 hours

*كيمياء و حيوان – فيزياء حيوية – ميكروبيولوجى – كيمياء و نبات – علوم بيئة.

Answer the following questions

1- a - The following table shows the age distribution of patients (21 Marks)

Age	22-24	25-27	28-30	31-33	34-36
No. of pat	3	8	12	5	2

Calculate: i- median ii- standard deviation iii- mode

b- If X has binomial distribution with mean 4/3 and standard deviation $2\sqrt{2}/3$ Find $P(X \geq 2)$. (5 Marks)

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[2]- a- A random sample with $\sum_{i=1}^{40} X_i = 280$ and $\sum_{i=1}^{40} X_i^2 = 2100$. Construct 98% confidence interval for the population mean. (10 Marks)

b- If X is a random variable has the density function (10 Marks)

$$f(x) = \begin{cases} 3x^a & 0 < x < 1 \\ 0 & otherwise \end{cases}$$

Find 1- Constant a. 2- Distribution function. 3- Variance.
4- $P(0 < X < 0.5)$, $P(0.6 < X < 4)$, $P(X = 0.3)$, $P(X > 0.1)$.

c- A sample of size 64 is drawn from a population with mean 3.2 and standard deviation 1.6 Find the probability that the sample mean will be
1- more than 3.5 2- less than 2.7 (10 Marks)

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[3] a- If $\overline{X} = 16$, $\sum_{i=1}^{n} X_i^2 = 6640$ and $S^2 = 10$, Find n. (4 Marks)

b- If X has Poisson distribution with $P(X = 0) = P(X = 1)$. Find
1- $P(X \geq 4)$. 2- $P(X < 1)$. 3- mean and variance. (10 Marks)

c- A random sample of size 16 has mean 32.8 and standard deviation 4.51, Construct 95% confidence interval for the population mean. (10 Marks)

$Z_{0.01} = 2.33$, $Z_{0.025} = 1.96$, $t_{16, 0.025} = 2.145$, $t_{15, 0.025} = 2.131$, $\phi(1) = 0.8413$, $\phi(1.5) = 0.933$, $\phi(2.5) = 0.9937$.

Best wishes *Dr. Noura Fakhry.* *Dr. Mohamed Abd El-Rahman.*