

امتحان دور يناير ٢٠١٣ م
برنامج : *
المستوى: الثالث
اسم المقرر : احصاء حيوى
كود المادة : ر ٣٠١



جامعة المنصورة - كلية العلوم
قسم الرياضيات
التاريخ : ٢٥ / ١٢ / ٢٠١٢ م
الدرجة الكلية : ٨٠
الزمن : ساعتان

Answer the following questions:

[1] a- A random sample of 100 patients is selected and treated by a new drug for AIDS. After 8 weeks, 20 of them show signs of improvement. Find a 99 % confidence interval for the true proportion of all patients treated by this new drug and show improvement after 8 weeks. (10 Marks)

b- Suppose that in a certain city , the probability that a man has high blood pressure is 0.18 If we randomly select 10 men from this city .

i) Find the probability that exactly 3 men have high blood pressure

ii) Find the expected number of men with high pressure (10 Marks)

[2] a- A Coin is tossed 4 times , let X denotes the number of heads occurs . Find

i) $P(X = 3)$ ii) $E(X)$ iii) $Var(X)$ (10 Marks)

b- A sample of size 64 is drawn from a population with $\mu = 3.2$ and a standard deviation $\sigma = 1.6$. Find the Probability that the sample mean will be

i) more than 3.5 ii) less than 2.7 (10 Marks)

c- In a certain population, suppose that the number of deaths per year from cancer has a Poisson distribution with average 6 Find the probability that in a year there are

i) Exactly 4 deaths ii) Less than or equal two deaths (10 Marks)

[3] The following table shows the age distribution (in years) of 76 patients who complained of flu. (30 Marks)

Age	5.5 – 10.5	10.5 – 15.5	15.5 – 20.5	20.5 – 25.5	25.5 – 30.5	30.5 – 35.5
frequency	6	10	20	22	13	5

Find i) The sample Mode ii) The sample median iii) The sample variance

$$\varphi(1.5) = 0.933 \quad , \quad \varphi(-2.5) = 0.0062 \quad , \quad t_{(0.025, 8)} = 2.306 \quad , \quad t_{(0.025, 9)} = 2.262$$

$$Z_{0.005} = 2.58 \quad , \quad Z_{0.025} = 1.96$$

* برامج : كيمياء و حيوان - فيزياء حيوى - ميكروبيولوجى - كيمياء و نبات - علوم البيئة

مع أطيب التمنيات بالنجاح د. فاتن شичه - د. نورا فخرى

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. 2013

Educational Year: Third Level

Program (Branch): Microbiology

Subject: M 301

Course: Biology of Bacteria

Time: 2 hrs Date: 31 /12 /2012

Full mark: 60

Question mark: 20

Answer the following questions:

I-Discuss each of the following:

1. Effect of oxygen on bacterial growth. (7 Marks)
2. Formation of bacterial endospore. (8 Marks)
3. Chemotaxonomy as a criterion for classification and identification of bacteria. (5 Marks)

II. In a Table, compare and contrast each of the following pairs:

1. Cell wall of Gram-positive and Gram-negative bacteria. (8 Marks)
2. Active transport and passive diffusion for transport of nutrients across the cytoplasmic membrane. (7 Marks)
3. Lag phase and Log phase of bacterial growth curve. (5 Marks)

III. Complete the following:

1. Haeckel suggested kingdom..... to be added to include microorganisms. However, in Bergey's Manual of Determinative Bacteriology (1974), bacteria are placed in kingdom.....
2. The glycocalyx is chemically composed of.....or.....and can serve a number of functions;.....,.....,.....,.....
3. The bacterial cell is a prokaryotic cell due to.....,,,,.....
4. Morphology of bacteria is defined as.....
5. Flagella are rarely found on..... and a cluster of flagella at one pole of the cell is called.....
6. The major surface antigenic constituent of Gram-positive bacterial cell is.....
7. The ratio of surface area to cell volume for bacteria is..... and in practical terms this means that.....
8. Plasmids are.....and can be classified on the basis of.....into different types which are.....,.....,.....,.....
9. Some bacterial species can have a variety of cell shapes and are thus termede.g.....
10. The shape-determining part of the bacterial cell wall is..... and it contains three kinds of building blocks:.....,..... and.....

Examiner: Dr. Attiya Mohamedin

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Final examination in Botany
First Term Jan. 2013

Educational Year: Third level

Subject: M 302

Time: 2hrs.

Date: 3/1/2013

Full mark: 60

Program (Branch): Microbiology

Course: Virology - Immunology

Question mark: 20

Answer the following questions

(الامتحان في صفتين)

Q1):- I) Give a brief account and illustrations on only ONE of the following:- (8 Mark)

- a- Virulent replication of bacteriophages. (8mark)
- b- General characters of viruses. (8 Mark)

II) Concisely explain only TWO of the following:

- a- Chemical nature of viral lipids. (6 Mark)
- b- Cell culture technique for viral cultivation. (6 Mark)
- c- Precipitation as a tool of viruses' purification. (6 Mark)
- d- Viral- related entities. (6 Mark)

Q2):- Answer each of the following as requested

A) Determine the cause and repair it: (3 Mark)

A standard purified BYMV has $A_{280}/A_{260} = 2$, Although by using gel filtration it was estimated at 1.3.

B) Prove only ONE of the next facts: (3 Mark)

- "Contagium Vivum Fluidum" as a nature of virus.
- Mechanical transmission of viruses.

C) True and false (circulate the correct response); correct simply the wrong one (5 Mark)

- 1- (T – F) Bacterial viruses were classified into five morphological group.
- 2- (T – F) Viruses may be present in crystal form only outside the host.
- 3- (T – F) Tulip breaks is the earliest recorded plant viral disease.
- 4- (T – F) Viroid: a group of proteinaceous infectious agent that cause disease to animals only.
- 5- (T – F) Helical is the only viral symmetrical pattern.

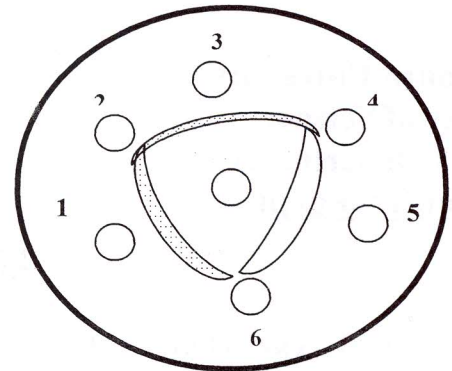
D) Chose the most correct answer (5 Mark)

- 1- Chick embryo technique used for ----- virus cultivation.
- 2- Fenner's role for viral maintenance state that -----.
- 3- The virus that can not replicate in the absence of helper called -----.
- 4- ----- refer to the viral coat, composed of ----- (morphological unit) which in turn composed of protomers (-----).
- 5- Viruses are used as a very powerful tool in the molecular biology field because of -----, ----- and -----.

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E) Explain these results. (4 Mark)

Ouchterlony was used as serological tool to determine the most effective method for H₃N₂ virus purification, where peripheral wells contain viral preparations from differential centrifugation, PEG precipitation, filtration, solvent extraction, isopycnic centrifugation, heamadsorption methods respectively.



Q3):

I) With clear labeled diagram and commentary notes describe Only one of the following:- (5 Mark)

- a- The different stages of phagocytosis process.
- b- The origin and co-operation between T and B lymphocytes.

II) Answer TWO ONLY of the following as requested (15 Mark)

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

1. All of the following are true with respect to IgM antibodies EXCEPT which one

- A. they fix complement
- B. they occur on the surface of lymphocytes
- C. they predominate in the primary response to antigen
- D. they are glycoproteins
- E. they mediate allergic reaction

2. Which of the following are MOST closely related to each other

- A- Antigen
- B- Allergen
- C- Epitope
- D-Antibody

3. Antibodies are distinguished from antigens, because they

- A. can only be proteins
- B. always have carbohydrate attached to their heavy chains
- C. can only be made by B-cells and plasma cells
- D. contain nucleic acids

4- Variable regions domains are:

- A. needed to bind complement to initiate this cascade
- B. located at the N-terminal of light and heavy chains
- C. necessary to facilitate transport across the placenta
- D. necessary for specific recognition of antigen

5. General properties of antigen

- A. Large molecular weight
- B. Foreign to the body
- C. chemical nature
- D. all above

B): Compare and contrast between different isotypes of immunoglobulins OR different types of hypersensitivity. (5 Mark)

C): Briefly explain antigens with respect to structure, factors influencing antigenicity and types. (5 Mark)

D): Concisely explain types of acquired (specific) immunity with special reference to stages of CMI response. (5 Mark)

With our best wishes

Examiners:-

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جامعة المنصورة
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Final Examination in Botan First Term: Jan 2013

Students: 3rd Level Microbiology

Course: Microbial Genetics and
Ultrastructure of the cell (M303)

Time: 30 min.

Date: 17/1/2013

Full mark: 60

Question mark: 20

Q1: Discuss the following :

- a- Mutation suppression. (7 Marks) b- Replication of bacterial chromosome. (9 Marks)
c- Gene mapping of viral chromosome using viral mutations. (9 Marks)

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

- 1- The deamination of Guanine gives uracil which pairs with adenine and eventually leads to a transition from CG to AT.
- 2- The leading strand is synthesized from 5' to 3' whereas the lagging one is synthesized from 3' to 5'.
- 3- Missense mutation means that the base substitution alters a codon for a specific amino acid to give a stop codon.
- 4- Replicase enzyme can synthesize RNA from RNA.
- 5- The chemical 2-aminopurine is analogue to adenine.
- 6- The information necessary for phage attachment and injection of its chromosome is directed by the viral protein.
- 7- Frame shift mutations occur as a result of either deletion or insertion of a single nucleotide.
- 8- Primer is a short stretch of DNA that synthesized by primase.
- 9- M13 phage infects E. coli but does not lyse its host cell.
- 10- The auxotrophic bacterial strains can not grow on minimal medium.

B- Complete the following: (10 Marks)

- 1- When two light waves combine....., the brightness is increased.
- 2- Fluorescein emits fluorescence when excited with light.
- 3- Imaging of complex three-dimensional objects is possible with the microscope.
- 4- Golgi consists of organized stacks of disc-like compartments called Golgi
- 5- Membrane lipids are molecules and spontaneously form

Q3 Answer the following using the instructions between brackets: (20 Marks)

- a- Microtome. (Define)
- b- A simplified road map of protein traffic in the cell. (Draw and Discuss)
- c- Rapid freezing technique in microscopy. (Write short notes)
- d- Breakdown and re-formation of the nuclear envelop during mitosis. (Draw and Discuss)

Best Wishes

Examiner: Dr. Linda Z. Samaan

Dr. Ashraf Elsayed

Mansoura University
Faculty of Science
Chemistry Department
Subject: Analytical Chemistry
Course:
Chromatography, Volumetry and
Gravimetry
Course code: 314



3rd level general Chemistry
students)
Date: 14-1-2013
Time allowed: 2 hours
Full Mark: 60 Marks

Answer the Following Questions

Chromatography :

- 1- In quantitative analysis in Gas Chromatography discuss the following :
 - a- Normalizing peak area for determination of percentage composition of each component in the mixture .
 - b- Procedure using peak area measurements and calibration curve For the quantitative analysis by GC. (10 marks)
- 2- What is the electron capture detector ? Explain its basis for operation , what types of species (analytes) are detected with (ECD) (5marks)
- 3- How Number of plates ,Height equivalent to theoretical plates and Resolution are determined from the chromatogram . Discuss the important of these measurements in chromatography. (10 marks)
- 4- Whate are the types of capillary column in GC . (5 marks)

Volumetry and Gravimetry:

- 5 a-Define only 3 of the following: (6 marks)
 - i- Acidbase indicators
 - ii-Normality
 - iii- Buffer solutions
 - iv- Coprecipitation
 - v- Peptization
- b-Titrating a 50.0 ml water sample for total hardness requires 4.08 ml 0.01 M EDTA. Calculate the hardness of the water as mg/l (ppm) calcium carbonate. (4 marks)
- c- A concentrated solution of aqueous ammonia is 28.0% w/w NH_3 and has a density of 0.899 g/mL. What is the molar concentration of NH_3 in this solution? (4 marks)

← اقلب الصفحة

6-a-Write shortly on **only 2** of the following: (8 marks)

i- Compare between Mohr's and Fajan's method in argentometric titration.

ii- Compare between KMnO_4 and $\text{K}_2\text{Cr}_2\text{O}_7$

iii- Requirements for successful gravimetric analysis.

b- A buffered solution contains 0.5M acetic acid ($\text{HC}_2\text{H}_3\text{O}_2$, $K_a = 1.8 \times 10^{-5}$) and 0.5M sodium acetate ($\text{NaC}_2\text{H}_3\text{O}_2$). Calculate the pH of this solution.

(4 marks)

c- 5.0 ml of 0.10M Ce^{4+} solution is added to 5.0 ml of 0.30M Fe^{2+} solution. Calculate the potential of a platinum electrode dipped in the solution

relative to NHE. $E_{\text{Ce}^{4+}/\text{Ce}^{3+}} = 1.61$, $E_{\text{Fe}^{3+}/\text{Fe}^{2+}} = 0.771$ (4 marks)

with our best wishes
prof, Dr. M.El-Defrawy and Dr. Y.Abo-riesh