المستوى الثالث - كيمياء ونبات - علم البكتريا والفيروسات (ب ٣١٧)

Mansoura University
Faculty of Science
Botany Department
Mansoura - Egypt

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة- مصر

Final examination in Botany
Second Term May 2013

Educational Year: Third level **Program (Branch):** Chemistry / Botany
Subject: B (317) **Course:** Bacteriology - Virology
Time: 2hrs. **Date:** 27 /5/2013 **Full mark:** 60 **Question mark:** 20

Answer the following questions (الامتحان في صفحتين)

Q1):- Compare between each of the following pairs:-

a- The cell wall of Gram-positive and Gram-negative bacteria. **(7 Marks)**
b- Lag phase and log phase of bacterial growth curve. **(6 Marks)**
c- Passive diffusion and active transport of nutrients. **(7 Marks)**

Q2):-

A) Write briefly on:-

1- Structure and properties of mature endospore. **(5 Marks)**
2- Definition of morphology of bacteria and arrangement of bacterial cells. **(5 Marks)**

B) Using illustrative diagrams describe only TWO of the following:-

1- Viral preservation and purification of virus through precipitation method. **(5 Marks)**
2- Cell culture technique for viral cultivation. **(5 Marks)**
3- Virulent replication of bacteriophages. **(5 Marks)**
4- Nucleoprotein chemical nature of viruses. **(5 Mark)**

Q3):- Answer each of the following as requested:-

A) Prove:

"Contagium Vivum Fluidum" **OR** "Filterable agent" as a nature of virus. **(5 Mark)**

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

1- (T – F) Based on nucleic acids viruses may be classified into two groups.
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) Helical is the only viral symmetrical pattern.
5- (T – F) Most plant viruses have outer envelope.

فضلا تابع التالي

C) **Fill the space:- (5 Mark)**

1- Chick embryo technique used for ---------- virus cultivation.

2- ---------- record self-assembly phenomenon of viruses which means ----------.

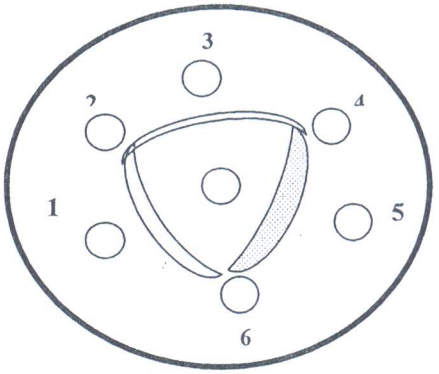
3- Virus is metabolically inert due to absence of ----------, ---------- and---------.

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 ----------

D) **Explain these results. (5 Mark)**

Ouchterlony was used as serological tool to determine the most effective method for H_3N_2 virus purification, where peripheral wells contain viral preparations from differential centrifugation, PEG precipitation, filtration, solvent extraction, isopycnic centrifugation, heamadsorption methods respectively.



With my best wishes

Prof. Dr. Attiya Mohamedin *Dr. Adel A. El-Morsi*

الفرقة الثالثة - كيمياء حيوية
كيمياء ونبات
كيمياء وصيدلة

كيمياء عضوية - كيمياء حيوية لـ ٣٤٦

Mansoura University
Faculty of Science
Chemistry Dept.
3rd Year Gen. Chem.

2d Semester 2013
Chem. ~~364~~ 346
Full Mark [80]
Time Allowed 2 hr

Final Examination

Answer the Following Questions:

1) Identify the **INCORRECT** statement below [5]

a. The molecules must collide to react.
b. There must be enough energy for the two molecules to react.
c. The pre-exponential factor is a measure of the rate at which collisions occur in the gas.
d. The more complex the reacting molecules, the higher the value of P.
e. The molecules must be orientated with respect to each other correctly.

2) What are the units of k for the rate law: Rate = $k[A][B]^2$? [5]
(a) s^{-1} , (b) s, (c) L mol^{-1} s^{-1} , (d) L^2 mol^{-2} s^{-1} (e) L^2 s^2 mol^{-2} .

3) Sketch a diagram for the consequences of light absorption. [5]

4) Derive a rate constant equation of the second order reaction;
A + B → Products. Assume A and B have equal initial concentrations.
[10]

5) Distinguish between each of the following: [15]
a. Characteristics of fluorescence and phosphorescence.
b. Relation of [B] with time for parallel and consecutive reactions.
c. Intermediate and active complex (transition state).

6) A certain system absorbs 3.0×10^{16} photons of light per second. On irradiation for 10 minutes 0.002 mole of the reactant was found to have reacted. Calculate the quantum yield. [10]

7) The following data were obtained for A + B → product at 100°C:

من فضلك اقلب الصفحه

$[[A]_o$ (mol L^{-1})	$[[B]_o$ (mol L^{-1})	Initial rate (mol $L^{-1}s^{-1}$)
$1.0x10^{-4}$	$1.0 x10^{-4}$	$2.8 x10^{-6}$
$1.0 x10^{-4}$	$3.0 x10^{-4}$	$8.4 x10^{-6}$
$2.0 x10^{-4}$	$3.0 x10^{-4}$	$3.4 x10^{-5}$

Determine for this reaction [15]

(a) Over all order, (b) The rate law and (c) Half-life time.

8) If the reaction, $SOCl_{2(g)} \rightarrow SO_{2(g)} + Cl_{2(g)}$, is first order with a half-life of 3.2×10^4 s and activation energy 150 kJ at 327°C.Calculate [15]

(a) rate constant, (b) time required to decompose 30.0 % of $SOCl_2$.

(c) temperature at which the rate constant is 1.00×10^{-3} s^{-1}.

N.B. $N_A = 6.02 \times 10^{23}$ mol^{-1}, h = 6.626×10^{-34} Js, C = 3×10^8 ms^{-1}, k = 1.381×10^{-23} JK-1.

GOOD LUCK

Prof. Shawky Hassan Prof. Hamed Abo El-Nadar

المستوى الثالث - كيمياء - كيمياء بلنبات الطبية (ك ٣٣٥)

كيمياء صيدلية
كيمياء صيدلانية
كيمياء زراعية

Mansoura University
Faculty of Science
Chemistry Department
Mansoura, Egypt

جامعة المنصورة
كلية العلوم
قسم الكيمياء
المنصورة – مصر

Second Semester May 2013

Educational Year: 3ed Year Chemistry.
Course (s): Natural Products.
Date: 03/06/2013.
Course Code: CH 335.

Subject: Chemistry.
Full Mark: 60.
Time: 2 hrs.

Answer the following questions

1 – a) Explain how α - terpenole is biosynthesized from acetyl-Co A. (10 marks)

b) Write the chemical structure of the following compounds and their classification (5 marks)

1- Cholic acid. 2- Codeine. 3- Ephedrine. 4- Oestrogen. 10- Myrcene.

2 – a) How biosynthetic pathway of ergosterol is converted to Vitamin D_2 ? explain your answer by chemical equations. (5 marks)

b) Nicotine is an alkaloid elucidate its chemical structure. explain your answer by chemical equations. (10 marks)

3 - Illustrate by chemical equations the conversion of the following: (15 marks)

a) Dehydroepiondrosterone into testosterone.

b) p-Toluic acid to α-terpineol.

c) Shikimic acid to cinnamic acid.

4 – Clearly show the structure elucidation of the following: (15 marks)

a) α - Terpineol

b) Geraniol.

c) Hygrine.

Prof. Dr. MM Abou-Elzahab, Prof. Dr. M Berghot & Dr. M Elsayed

المستوى الثالث - كيميا ونبات - مناخ وتصنيف زهري كيميا ونبات ب ٣١٨

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

جامعة المنصورة
كلية العلوم
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المنصورة - مصر

Final Examination in Botany
Second Term: Jun. 2013

Educational Year: Third Level | **Program (Branch): Botany / Chemistry**
Subject: Bot (318) | **Course(s): Climate-Plant Cover & Taxonomy**
Time: 2 hrs | **Date: 6 / 6 /2013** | **Full mark:** 60 | **Question mark: 20**

Answer the following questions:

Q.1 A- Write on Two Only of the following: (20 marks)

1- Classification of xerophytes.
2- Draw only: Standard Rain Gage and Anemometer.
3- External and internal features of halophytes.

Q.2 A- Complete the following sentences: (10 marks)

1- Plants grow in low light intensity is called ....
2- Oligohalophytes are plants growing in .... habitats, while .... are resisting salts by desalinization of their tissues.
3- Snow is .... and hail is ....
4- .... hydrophytes are adapted to grow either in shallow water or on the muddy substratum.
5- The boundary between the troposphere and the stratosphere is called ....
6- Evaporation can be measured by.........., while.........is measured by hygrometer.
7- .... is the presence of water in excess amount but is not ready available to plants.

B- Answer the following questions: (10 marks)

a- Device e a key to differentiate between families under order Urticales and Scitamineae.
b- Give economic important of the genus Morus.

Q3. A- Fill the space with the correct word: (10 marks)

1- Branches of *Salvadora* are used as ....
2- Flowers are unisexual and dioecious in family ....
3- .... Is a marine water plants under family Potamogetonaceae.
4- In family Palmae inflorescence is ....
5- Cyperaceae with ....fruit.
6- .... is a monoct plant but its leaves with pinnate venation.
7- In families .... and .... petals are differentiated into claw and limb.
8- .... is a plant with only two petals inside the spure.
9- .... is a duck weed family.

B- Answer each of the following either true (√) or false (×). (10 marks)

1- Family Cruciferae belong to order Rhoeadales.
2- In Ammi majus inflorescence is compound umbel.
3- The distinguishing features of order Campanulatae is coherence of the anther to form a tube.
4- In Caryophyllaceae leaves are rounded with tendril petiol.
5- Leaves of Myrtaceae covered with stellate hairs.
6- Stamens are tetradynamous in family Labiatae.
7- Fruit is caryopsis in family compositae.
8- Flowers are zygomorphic in subfamily Mimosoideae.
9- Most of the plants in family Malvaceae contain latex, resin canals and calcium oxalate.
10- Inflorescence of Geraniaceae without bracts and bracteoles.

Examiners: **Dr. Ehsan El-Habashy** **Dr. Yasser El-Amier**

Faculty of Science
Botany Department
El-Mansoura, Egypt

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Final Examination in Botany
Second Term: June. 2013

Educational Year: Third Level **Program (Branch): Botany/Chemistry**
Subject: N(319) **Course(s): Plant nutrient and tissue cultures**
Time: 2 hrs **Date: 10 / 06 /2013** **Full mark:** 60 **Question mark: 20**

Answer the following questions:

Q1 Explain briefly the different methods for classification of hydroponics giving examples of hydroponics types. **(20 mark)**

Q2 **A:** Discuss briefly the basic requirements of hydroponics with special reference to the composition of plant nutrient culture. **(10 mark)**

B: Describe anther culture and mention the features of haploid plants. **(10 mark)**

Q3 **A : Define the following terms:** **(10 mark)**

Totipotency theory, aseptic condition, explant, callus, differentiation, embryogenesis, morphogenesis, rejuvenation, subculture, and protoplast culture.

B: Describe the following: **(10 mark, 2 mark each)**

i- Phytohormones and their role in plant tissue culture.

ii- Significance of plant tissue culture for society.

iii- Different types of calli.

iv- Methods of initiation and establishment of a plant cell suspension culture.

v- General steps of establishing a plant tissue culture system.

Best wishes

Examiners: Prof. Mohamed A. Abbas Dr. Farag Ibraheem