مجموعة البيولوجي - م ٢٠٤ ميكروبيولوجيا عامة

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Educational Year: Second Level | Final Examination in Botany | Subject: Botany

Course: General Microbiology | Summer Term: August ٢٠١٣ | Program: Biology Programs

Code: B ٢٠٤

Time: ٢ hours | Date: ٢٠/٨/٢٠١٣ | Full Mark: ٦٠ | Question Mark: ٢٠

Answer the following questions:

(Q١)

(A) Complete the missing parts: (٧ mark)

١) Microbial growth could be determined directly using.....and indirectly by.....

٢) ...../.....and.....are the most used chemical antimicrobial agents.

٣) Activities of microorganisms may be harmful as.....or beneficial as.....

٤) Bacteria are classified according to their oxygen requirements to **aerobes/anaerobes/...../.....and.....**

٥) ...is one of the sterilization methods that removes microorganisms rather than killing them.

٦) Chemical substance that can be added to microbiological nutrient media and changing their physical properties is called.....

٧) Microbiology is the branch of science that studies.....

(B) True or false (Circulate T or F letters) and correct the false statement(s): (٧ mark)

١) (T - F) Living organisms are classified into two domains according to Woese system of classification.

٢) (T - F) Streak-plate method is used for enumeration of microorganisms.

٣) (T - F) Glycocalyx is one of the cell wall external structures.

٤) (T - F) Some components of the chemically defined media are of known exact formula.

٥) (T - F) Carbon is the most macronutrients required by microorganisms.

٦) (T - F) Osmotolerant microorganisms can survive in high salt concentrations.

: تابع بقية الاسئلة فى الخلف

(C) **Choose the correct answer:**

(٦ mark)

١) Which of the following structures prevent the dehydration of a bacterium?

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٣) In obligate aerobic bacteria, superoxide dismutase and catalase work together to convert the superoxide radical to

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٥) The microbial diversity was illustrated in

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٦) The first person who observed microorganisms was

a. Antonie van Leeuwenhoek **c. Matthias Schleiden** **b. Robert Hooke** **d. None**

(Q٢)

(A) **Define:** (١٠ mark)

١) Generation time ٢) Microaerophiles

٣) Cardinal temperatures ٤) Oligodynamic effect

(B) With clear labeled diagrams; compare and contrast between gram positive and gram negative cell wall of bacteria. (١٠ mark)

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Discuss with illustrations: (٢٠ mark)

١) Growth curve of unicellular microorganisms.

٢) Binary fission in bacteria.

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Examiners:

Ass. Prof. Dr. Mervat H. Hussein **Dr. Ghada Samir Abou-ElWafa**

ف ع ١١ ح مقدمة فى الفيزياء الحيوية (فيزياء فيزياء حيوى - مجموعة البيولوجى)

Mansoura University
Faculty of Science
Physics Department
Course code: Bio-Phys 211
Course title: General biophysics

September 2013
Date:18-8-2013

2nd Level students
Biophysics-Physics-Microbiology-Chemistry-Biochemistry-Chemistry Botany - Chemistry Zoology and Environmental Science
Full Mark: 80
Allowed time: 2 hours

Answer all the following questions:

1- A- Write true (√) or False (χ) **[each item = 1.5 Mark]**

i. The ear canal behaves like a pipe open from one end and the other end is closed by tympanic membrane.
ii. The frequency range detected by the human ear is between 20 Hz-20000 Hz.
iii. Hypermetropia caused by irregularity shaped cornea results in light focusing in front of retina.
iv. There are three types of color sensitive rods in retina.
v. The human eye is organ design to receive visible light having wavelengths between 380 and 760 μm.
vi. The afferent neurons are those axons travel from sensing areas to the spinal cord
vii. Non ionizing radiations are known to cause DNA damage, cancer, mutation and birth defects.
viii. The electric potential of the brain can be measured by electro-encephalogram ECG.
ix. There are negative charges on the outside of the cell membrane of neurons than the inside produces a resting potential of -90 mV.
x. The conduction speed of myleinated axons is given by $u = 1.8\sqrt{a}$ (m/sec) where a is the radius of axon (μm).

B- Calculate the capacitance per unit length and area of an unmyleinated axon, if the material in the axon membrane has dielectric constant K=7 and $\varepsilon_o = 8.85 \times 10^{-12}$ S/ohm-m and the radius a= 3.5×10^{-6} m and thickness of membrane is b=5×10^{-9} m. **[5 Marks]**

C- What is the total flow resistance of a two parallel arteries in a calf have radius 0.4 mm and length 120 mm? If the volume flow rate of blood through these arteries is 1.4×10^{-6} m^3/sec, what is the pressure drop across the arties knowing that $\eta_{blood} = 3.5 \times 10^{-3}$ poise.

[5 Marks]

2- A- Complete the following sentences: (each item = 2 Mark)

- In .....(1).....effect, electron is ejected from the atom and is accompanied by scattered ...(2).....

الإمتحان مكتوب على وجهى الورقة

- The P-Wave in ECG indicates .....(3).....of the right and left .....(4).....
- The alpha waves of EEG have frequency range .....(5).....Hz in .....(6).....state.

B- Find an expression given for the decay constant of a radionuclide and its relation with the half life time? **[8 Marks]**

C- If a person has an unaided near point of 0.4 m, what would the power of a lens make him able to see an object at 25 cm? **[5 Marks]**

3- A- Choose the correct answer : **[each item = 1 Mark]**

i. The retina of the eye contains two types of photoreceptors cones and ..... (Spheres- triangles- rods-rectangles).

ii. 1 gray equal (1 rad- 10 rad-100 rad-1000 rad).

iii. The flow of ions causes an electric current in the ion chamber with intensity proportional to the .....of ions (volume- number-density –shape).

iv. About ..... of cones are green sensitive. (32%-42%-52%-62%).

v. 1 rem equal (0.1 Sv-0.01 Sv-0.001 Sv-0.0001 Sv).

vi. The beta particles are a fast moving .....(protons-neutrons-electrons-photons).

vii. ..... provide the eye's color sensitivity (Rods –Cones- Corneas –Irises).

viii. The percent of hydrogen atoms in human body is (53%-63%-73%-83%).

B- Define the following: **[each item = 2 Marks]**

a. Radiation flux
b. Graded potential
c. Depolarization
d. Decibel
e. Magnetic resonance imaging

C- Calculate the lowest frequency in which sound resonates in ear, knowing that the velocity of sound is C=350 m/sec and the ear canal length is L=2.5 cm (n=1 when $L=\lambda/4$). **[6 Marks]**

D- If you have 1gm of ^{226}Ra that emits $3.7x10^{10}$ photon/sec. What is the decay constant and half life time knowing that Avogadro's number=$6.02x10^{23}$. **[6 Marks]**

Best wishes:

Dr Hany Kamal

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ر ١٠١ - رياضيات بحتة مجموعة البيولوجي

الفرقة: الثانية المادة : رياضيات بحته – ر ٢٠١ الدرجة الكلية : ٨٠ درجة	كلية العلوم – قسم الرياضيات	امتحان الفصل الصيفى الزمن: ساعتان التاريخ : ١٨/٨/ ٢٠١٣

الشعب: ك +ك حيوي +ميكروبيولوجى+ك ونبات+ك وحيوان +جيولوجيا+علوم بيئة

أجب عن الأسئلة الآتية: كل سؤال ٢٠ درجة

[1] أ) ناقش اتصال الدالة الآتية عند النقطة (0,0)

$$f(x,y)=\begin{cases}\dfrac{3x^2y}{7x^2+y^2} & ,\ (x,y)\neq(0,0)\\ 0 & ,\ (x,y)=(0,0)\end{cases}$$

ب) اذا كانت $u=\tan^{-1}(\dfrac{x^3+y^3}{x-y})$ فاثبت أن $xu_x+yu_y=\sin 2u$.

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[2] أوجد الحل العام للمعادلات التفاضلية

a) $(x+y-1)dx-(3x+3y+1)dy=0$

b) $(x^2+xy+3y^2)dx=(x^2+2xy)dy$

---

[3] أ) استخدم قاعدة السلسلة لحساب $\dfrac{\partial z}{\partial u}$ اذا كانت $z=x\ln y\ ,\quad x=3u+2v\ ,\quad y=uv$

ب) أوجد الحل الخاص للمعادلة $y'+\dfrac{1}{x}y=\dfrac{1}{x^2}\ ,\ y(1)=1$.

---

[4] أ) أوجد قيمة التكامل $\iint_R (x^2+y^2)dxdy$ حيث **R** هى المنطقة المحصورة بين الدائرتين

$x^2+y^2=4\ ,\ x^2+y^2=16$.

ب) احسب التكامل الخطى $\int_c xy\,dx+x^2dy$ حيث **c** هى القطعة المستقيمة من النقطة **(2,1)** الى النقطة **(4,5)**.

مع أطيب التمنيات بالتوفيق   أسرة التدريس

٢ عرض فيزياء ف ٢٢١ (كيمياء - الحيوي - مجموعة البيولوجي)

Mansoura University
Faculty of Science
Physics Department

Summer Exam.
Date: Aug. 2013
Time Allowed: 2 hours
Full Mark: 80 Marks

Subject: Physics Course: 221 ف Physical Optics

Answer the following questions:

1] A) Demonstrate an explanatory diagram of the optical arrangement of Young's experiment of interference. Drive the theory of interference for this experiment.

[18 Marks]

B) When one of the beams of Mach-Zehnder interferometer passes through a wide tunnel of length 20 meters, 200 fringes cross the field of view. Calculate the change in refractive index if the wavelength of light is equal to 5890 A°.

[9Marks]

2] A) Explain with the necessary theory the interference in thin films due to reflected light.

[16 Marks]

B) Explain how you can obtain plan polarized light by reflection.

[11 Marks]

3] A) Discuss Fraunhofer diffraction pattern when using a rectangular slit. Drive and expression for the intensity distribution of observed diffraction pattern.

[20 Marks]

B) Calculate the angular spectrum separation of two D lines of Sodium of wavelengths 5890 A° and 5896 A° in the second older spectrum produced by diffraction grating. The light being incident normally on the grating which have 6000 lines / Cm.

[6 Marks]

Good Luck

Examiner: Prof. Dr. Taha Sokkar

مجموعة السولوجي - ٥٢٦

Mansoura University **Faculty of Science** **Chemistry Department** **Subject: Chemistry** **Course(s): Org. Chem. (236)**	كلية العلوم جامعة المنصورة	**Summer Exam** **Time Allowed: 2 hours** **Full Mark: 80 Marks** **Date:** 25, 8, 2013

Answer All Questions

1. Predict the major product(s) : **[27 Marks]**

i) $(CH_3)_2C{=}CH_2 + \xrightarrow[H_2O]{Br_2}$

ii) $CH_3-C(CH_3)_2-CH=CH_2 \xrightarrow[H_2O]{H_2SO_4}$

iii) $CH_3\text{-}CH{=}CH_2 \xrightarrow{ICl}$

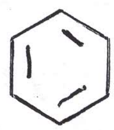
iv) $CH_3\text{-}CH_2\text{-}C(CH_3){=}CH_2 \xrightarrow[ii)Zn/AcOH]{i)O_3, CH_2Cl_2, -78°C}$

v) $(CH_3)_2C{=}CH\text{-}CH_3 \xrightarrow[ii)H_3O^+]{i)KMnO_4, \bar{O}H, \Delta}$

vi)  $\text{-}C\equiv CH \xrightarrow[H_2O_2]{HBr}$

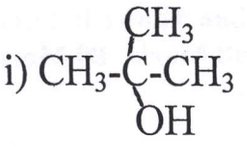
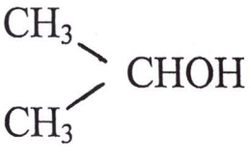
vii) $CH_3CH_2MgBr + CH_3CHO \rightarrow$

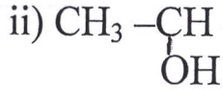
viii) $CH_3COOC_2H_5 + Ph\ Mg\ Br \rightarrow$

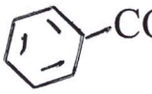
ix)  $+ CH_3\ CH_2\ CH_2Cl \xrightarrow{AlCl_3}$

2. A) Outline synthesis of the following compounds from the

indicated starting materials : **[9 Marks]**

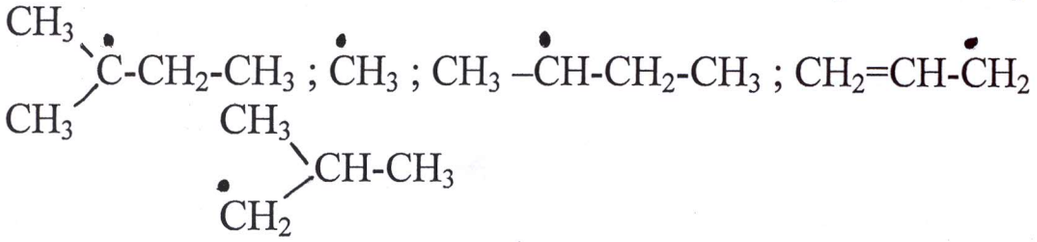
i)  from 

ii)  from $CH \equiv CH$

iii)  from 

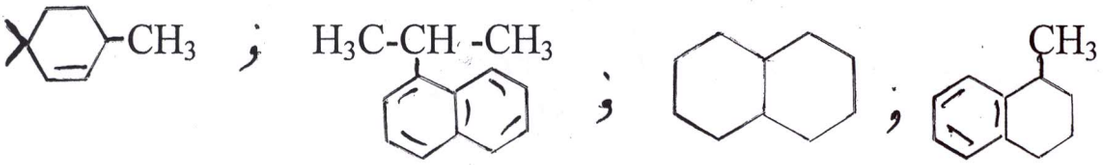
B) List the following radicals in order of their stability:

[6 Marks]

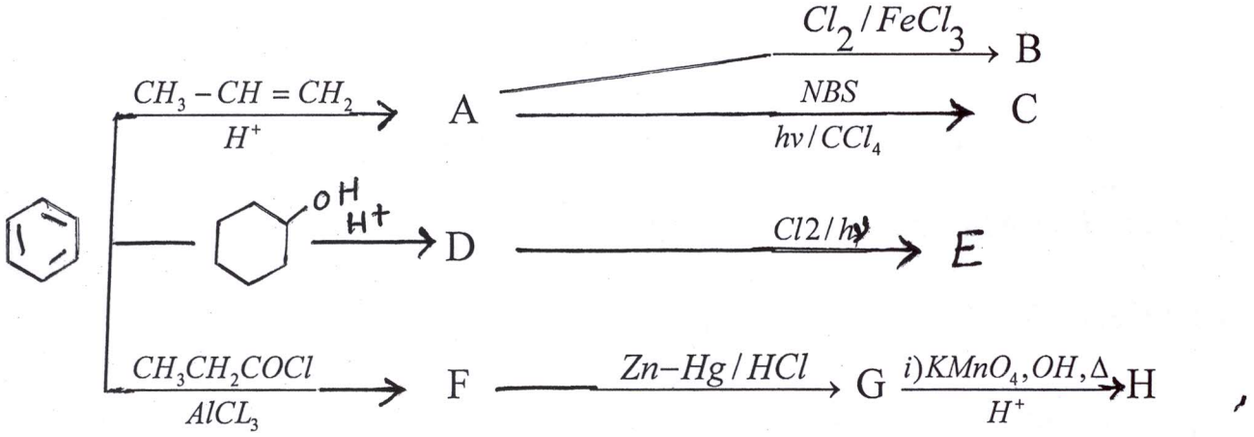


C) Show the effect of NBS / hν on each of theses compounds :

[12 Marks]



3.A) Draw the structures of organic products (A – H) in the following reaction sequences : [16 Marks]



B) On chlorination n-butane it was found that reactivity ratio between 1° : 2° H – atoms is 1 : 2.5 Calculate the percentage of each isomer **[10 Marks]**

مجموعة البيولوجيين - ع ٢٠٠٢

Mansoura University
Faculty of Science
Zoology Department

Subject: Functional Morphology (Z 203)
Date: 22/8/2013 Time
Allowed: 2 hours

Final examination (August, 2013) for 2nd level students, programes Chemistry/Zoology&Chemistry/Botany&Ecology&Microbiology

Answer all the following questions

First question:

a) Define each of the following terms: [15 Mark]

1- Tidal volume.
2- Blood pressure.
3- Vitamins.
4- Glycolysis.
5- Proteins.

Second question:

a) Write short notes on each of the following subjects: [15 Mark]

1- Heart valves.
2- Conversion of glucose into glycogen.
3- Pancreatic enzymes and their roles in food digestion.

Third question:

a) Write on the following: [6 Marks]

1- Kidney functions.
2- The difference between the cardiac and the smooth muscle.

b) Discuss three only of the following: [9 Marks]

1- Hyperglycemia. 2- Hyperthyroidism.
3- Hyperparathyroidism. 4- Homeostasis.

Fourth question:

a) Compare between anterior and posterior lobe of the pituitary gland. [5 Marks]
b) Write on the components of the nervous system. [5 Marks]
c) Illustrate skeletal muscle structure. [5 Marks]

مع تمنياتنا لكم بالتوفيق

د./ فريد عبد القادر

د./ هناء سراج

مجموعة السرايا ٥ ٢٠٤

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

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مجموعة السوليين - ب ٢٠٢

Mansoura University **Faculty of Science** **Botany Department** **El-Mansoura, Egypt**		جامعة المنصورة كلية العلوم قسم النبات المنصورة - مصر

Final Examination in Botany
Summer Term: August. 2013

Educational Year: Second level **Program (Branch):** **Biology** (Chemistry-Botany/ Microbiology/Chemistry-Zoology/ Environmental sciences)

Subject: B (202) **Courses: Plant Metabolism**

Time: 2 hrs **Date:** 22 /8 /2013 **Full mark:** 60 **Part mark:** 30

Answer the following questions:

Part I

A Write on : (20 mark)

1- Starch biosynthesis. (5 marks)
2- Calvin cycle. (10 marks)
3- Glycolysis. (5 marks)

B Put true or false and correct the false sentences: (10 marks; 1 mark each)

1- Mesophyll cells have many chloroplasts which contain the specialized light-absorbing yellow pigments, the chlorophylls. ( )
2- The higher the light wavelength the lower the energy content of the photon. ( )
3- Light dependent reactions takes place in the stroma of the chloroplast. ( )
4- Different stages of aerobic respiration occur only in the mitochondrion. ( )
5- In oxidative phosphorylation $FADH_2$ yields 2 ATP molecules. ( )
6- All the enzymes involved in Kresbs cycle occur in the matrix of the mitochondria except succinate dehydrogenase enzyme. ( )
7- The general molecular formula of monosaccharides is $(CH_2O_2)_n$. ( )
8- Lactose consists of glucose + fructose. ( )
9- Under anaerobic condition, pyruvate breakdown into methanol and CO_2.
10- Starch is a mixture of amylose and amylopectin. ( )

P.T.O →

من فضلك اقلب الصفحة

Part II

A Explain the following: (20 marks; each of 5 marks)

1- Transcription step in protein synthesis.

2- Amino acid catabolism.

3- Biosynthesis of triacylglycerol by Kennedy pathway.

4- Fatty acid biosynthesis.

B Complete the following sentences: (5 marks; 1 mark each)

1- Fats and oils are made from two components …….. and ……

2- Glyoxylate cycle occur in ……..

3- Nitrogen bases in DNA was ……, ……., …… and ……

4- Start codon on mRNA is …….

5- Definition of saturated fatty acid……

C Put right or wrong and correct the wrong sentence: (5 marks; 1 mark each)

1- An amino acid may have more than one codon. ( )

2- The tail of fatty acids is a long hydrocarbon chain which is hydrophilic. ( )

3- Chains containing less than 50 amino acids are called proteins, while those containing greater than 50 amino acids are called peptides. ( )

4- Initiation, elongation and termination are three stages in the translation step of protein synthesis. ( )

5- Ribosome has three sites for tRNA attachment. ( )

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