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

جامعة المنصورة- كلية العلوم
قسم النبات- المنصورة - مصر

Final Examination in Botany (Jan 2009)

Educational Year: First Level Subject : B (101) **Course(s):** Systematic Botany
Program (Branch): Chemistry/Botany, Chemistry/ Zoology, Microbiology, Environmental science
Time: 2 hrs **Date:** 12/1/2009 **Full mark:** 60 **Question mark: 15**

Q1: **Answer THREE only (15Mark)**

a-Describe the vegetative structure of the thulus and mode of sexual reproduction in Spirogyra.
b- List the distinguishing features of fungi. Describe the structure of yeast.
c- What are lytic viruses? State briefly the steps of their infection.
d- Explain briefly the general characters of Bryophyta. Describe the vegetative structure of any one of them.

Q2: **Write short notes on the following (15 Mark)**

a- Shapes and arrangement of bacteria.
b- General characters of chlorophyta, cyanophyta and euglenophyta.
c- Life cycle of Rhizopus. Explain the steps with help of diagrams.

Q3: **Complete (15 Mark)**

1. Bacteria belong to the kingdom ----------.
2. Euglena is normally ---------- and reproduce by ----------.
3. Viruses have been classified into three groups: ---------- viruses, ---------- viruses and ---------- viruses.
4. In monokaryotic fungi, each cell contain a single ----------.
5. Basidiomycetes produce special types of spore called ----------.
6. Rod-shaped bacteria are normaly known ----------.
7. Protein sheath (Capsid) is composed of protein subunits called ---------.
8. Walls of diatoms consist basically of 2 parts: --- and ----------.
9. The plant body of every lichen consists of two different plants: ---------- and -------.
10. Oscillatoria is --------- filament.

Q4: **Choose the one best response to each question (15 question only) (15 Mark)**

1- Cellulose is absent from the cell wall of
a- Fungi b- Algae c- Bryophyta d- Bacteria

2- Procaryotic cells lack:
a- Nuclear membrane b- Cell membrane c- Genome d- Cell wall

3- Bacterial cell with only one flagellum is termed as:
a- Lophotrichous b-- Amphitrichous c- Mono trichous d- Peritrichous

4- Penicillium reproduces asexually by
a- Zoospores b- Conidiospores c- Sporangiospores d- Chlamydospores

5- Chlamydomonas is a
a- Unicellular algae b- Colonial alga c- Filamentous alga d- All of above

6- Shapes of viruses are
a. Oval b. Spherical c. Polyhedral d. All of above

7- Gelatinous coating around the bacterial cells is known as
a- Capsule b- Cell wall c- cell membrane d- All of above

8- The normal mode of reproduction in bacteria is by
a- Endospores b- Binary fission c- Budding d- Non of above

9- Puccina graminis is an obligate parasite on
a- Zea b- Wheat c- Berberis d- Wheat and Berberis

10- In volvox, the following types of cells can be recognized

a- Somatic cells b- Gonidia c- Antheridia and oogonia d- All of above

11- Ascomycetes produce special types of ascocarps:

a- Apothecium b- Perithecium c- Cleistotheium d- All of above

12- Reserve products of Phaeophyta consist of

a- Laminarin b- Mannitol c- Starch d- a+b

13- Classification of fungi is based mainly on

a- Sexual reproduction b- Structure of mycelium c- a+b d- Non of above

14- Gametophyte is leafy shoot in

a- Riccia b- Funaria c- Marchntia d- All of above

15- Euglena contains

a- One flagellum b- Two flagella c- Ring of felleglla d- Two or more felagella

16- Most fungi are

a. Filmentous form b. Unicellular form c. Colonial form d. All of above

17- Peptido glycan polymer is a principal cell wall component of

a- Fungi b- Bacteria c- Algae d- A+b

18- Colour of Cyanophyta is due to the following pigment:

a- Chlorophyll a b- β-Carotene c- Phycocyanin d- All of above

Examiners: Prof. Mohammed El-Nagar Prof. Mohammed Ismeal

Dr. Adel El-Morsey Dr. Doaa Darwish

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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
Jan 2009

Educational Year: First Level **Program (Branch):** Geology
Subject: B (101) **Course(s):** Systematic Botany
Time: 2 hrs **Date:** 12/1/2009 **Full mark:** 60 **Question mark: 15**

Answer the following questions:

Q1: Fill in the blanks:

a- Unicellular, non-motile, spherical green alga is ----------.
b- Vegetative reproduction takes place by budding in ----------.
c- Eukaryotic cell contains endoplasmic reticulum, ---------, ----------, --------, and ----------.
d- Bacterial cell with single polar flagellum described as ----------and that with two polar flagellum, one at each end described as ----------.
e- Fruiting body of Peziza is called ----------.
f- Spirogyra chloroplast is ---------- shaped and Chlamydomonas is ---------- shaped.
g- Cyanobacteria reproduce asexually by ---------- and ----------.
h- Fucus reproduces sexually by means of ---------- and ----------.
i- Uniseriate, unbranched, non-heterocystous filament of cyanobacteria is ------.

Q2: Write short notes with labeled illustrations on **THREE** only of the following:

a- Compare prokaryotic cell and Eukaryotic cell structure.
b- Lytic cycle of T-even Bacteriophage.
c- Structure of perfect flower.
d- Structure of Lycopodium Strobilus.

Q3: A- Choose the correct answer:

1- The Tetraspore of polysiphonia germinates to produce:
a- Cone b- Sporophyte
c- Carposporophyte d- Tetrasporophyte

2- Which of the following is belonging to kingdom Protista:
a- Puccinia graminis b- Pinus
c- Anabaena d- Ulva

3- Which of the following does not reproduce sexually
a- Asperigillus b- Chlamydomonas
c- Fucus d- Nostoc

4- Fungal cell wall consists mainly of
a- cellulose b- chitin
c- glycogen d- mucilage

B- With labeled diagrams compare and contrast sporophytes of Riccia and Marchantia.

Q4: Discuss the Whittaker's System of classification of living organisms, giving the characteristic features of each group.

Examiners: Prof. Samy Shaaban, Prof. Zakaria Awad
Prof. Yehia Osman, Dr. Mervat Hosney

Mansura University
Faculty of Science
Chemistry Department
El-Mansoura, Egypt

First Term Examination Jan. 2009

Eductional Year: First Level	Program: Botony and Zoology
Time: 2 hours	Subject : Chemistry
Date: 21/1 / 2009	Course : Chem (121)
	Full Mark : 90 Marks

ANSWER THE FOLLOWING QUESTION

1- a) On the basis of Molecular orbital theory,answer **THREE** only of the following: **(7.5 Marks)**

i) Which molecule is more stable O_2 or O_2^-?
ii) Which molecule is paramagnetic N_2 or O_2?
iii) Is Be_2 molecule stable?
iv) Calculate the bond order of C_2^{--}?
v) Predict the relative stability of N_2^+ and N_2^- ?

b) What is the emperical formula of a compound composed 50% oxygen and 50% sulpher by mass (Atomic weight of O = 16 , S =32) **(4 Marks)**

c) How many grams of $AgNO_3$ are needed to prepare 500 ml. of 0.3 Molar? (Atomic weight Ag = 107, N = 14, O = 16) **(3.5 Marks)**

2-a) Define the following: Hund's Rule- Pauli exclusion principle **(3 Marks)**

b) Calculate the wavelength in **(nm)** of the line in the spectrum of hydrogen atom that corresonds to an electron transition from the third to the second level (Rydberg constant = 109678 cm-1). Does this line occure in the visible light region? , Which series does this line belong? **(4.5 marks)**

c) Draw the Lewis structure for **TWO** only of the following : ($POCl_3$ - SO_4^{--} - NH_3) **(5 Marks)**

d) Draw the resonance structures for N_2O **or** CO_3^{--} **(2.5 Marks)**
($_{15}P$, $_8O$, $_{17}Cl$, $_{16}S$, $_7N$, $_1H$)

3- a) Choose the atom with larger first ionization energy : **(1.5 Marks)**
i) Be or B ii) Cl or Br iii) Li or Na ($_4Be$, $_5B$, $_{17}Cl$, $_{35}Br$, $_3Li$, $_{11}Na$)

b) Write (✓) or (x) on the following statements : **(4 Marks)**
i) The size of atom increases with increasing atomic number in period 2 . .
ii) The first ionization energy is less than the second ionization energy .
iii)The size of Fe^{3+} is smaller than Fe^{2+} .
iv) The first ionization energy decreases whith increasing atomic number in group IA .

c) Define: Lattice energy - Electron affinity **(2 Marks)**

d) On the basis of VSEPR , predict the geometry of **TWO** only of the following:
(SF_4 , H_2O , ClF_4^+) ($_{16}S$, $_9F$, $8O$, $_{17}Cl$, $_1H$) **(4 Marks)**

e) Which bonds is more polar : i) N-O or C-O ii) S-F or O-F **(1 Marks)**

f) Indicate the type of hybridization and structure of SF_6 **or** BF_3
($_{16}S$, $_9F$, $_{15}B$) **(2.5 Marks)**

4-a) Define **TOW** only of the following : **(2 Marks)**
i) Percentage yield ii) Emperical formula iii) Limiting reactant

b) How many grams of CO_2 will be formed when a mixture containing 4.6 gram C_2H_5OH and 4.8 gram O_2 is ignited ?
(atomic weight C=12 , O=16 , H=1) **(3.5 Marks)**

c) Calculate the number of atoms of Fe in 7.98 gram of Fe_2O_3 . **(2 Marks)**
(atomic weight Fe = 55.8 , O= 16) , Avogadro s number = 6.022×10^{23}

d) Write the four quantum number for the last electron ($4p^4$, $3s^2$) . **(3 Marks)**

e) Complete the following table : **(4.5 Marks)**

Element	Electonic configuration	Group	Period	Type
$_{35}A$	[Ar]	....	.....	....
$_{51}B$	[Kr]	....	....	....
$_5C$	[He]	.....	....	...

Type = Metal or nonmetal .

Examiners : 1- Prof. Dr. M. M. Bekheit 2- Prof. Dr. G. M. Abu –Elreash
3- Prof. Dr. A.A. El-Asmy 3- Dr. R. M. El-Shazly

Best my wishes

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Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s: Principal Inorganic (Chem 121)		First Term First level Date: Jan. 2009 Time Allowed : 2 hours Full Mark: 60 Points

ANSWER THE FOLLOWING QUESTIONS

1) What is the empirical formula for a compound composed of 43.7% P and 56.3% O by mass? **(5 points)**

2) Ethylene, C_2H_4 (1.93 gm) burns in air , O_2 (5.92 gm) to form CO_2 and H_2O. **(10 points)**
   (i) Which reactant is the limiting reactant?
   (ii) How many grams remain from the remaining reactant?
   (iii) How many grams of CO_2 produced?
   (iv) If the actual yield of CO_2 is 4.0 gm; Calculate the yield percent of CO_2.

3) For elements with Z = 3, Z = 8. What are the four quantum numbers for the last electron in each element? **(4 points)**

4) Diagram the Lewis structure for ClO_3^-. **(4 points)**

5) What are the frequency and wave length of the line in the hydrogen spectrum that corresponds to an electron transition from n = 3 to the n = 2 level ? **(4 points)**

6) Using Valence Shell Electron Pair Repulsion model (VSEPR-model), predict the geometry of the following molecules:
   (i) $BeCl_2$ (ii) $SnCl_2$ **(8 points)**

7) On the bases of the Molecular Orbital Theory (MOT), calculate the bond order for NO and O_2 molecules? **(7 points)**

8) What hybrid orbitals would be expected for the central atom in BF_3? **(3 points)**

9) Chose the most correct answer: **(15 points)**

1- The atom with Z = 15 is
   a) [Ne] $3s^0\ 3p^5$ b) [Ne] $3s^1\ 3p^4$ c) [Ne] $3s^2\ 3p^3$ d) [Ar] $3s^2\ 3p^3$ e) [Ne] $4s^2\ 4p^3$

2- The element with electronic configuration $1s^2\ 2s^2\ 2p^4$ is present on
   a) Second period b) s-block c) Second group d) All the above e) Non of the above

3- The geometry of CO_2 is
   a) Octahedral b) Tetrahedral c) T-shape d) Linear e) Non of the above

4- The ionization energy of B is .....than that of Be
   a) Same b) lower c) higher d) no relation e) non of the above

5- On the bases of the Molecular Orbital Theory (MOT), the bond order of O_2 molecule is
   a) 2.5 b) 3 c) 1 d) 0.5 e) 2

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6- The antibonding molecular orbital energy is …….. than that of the bonding
a) Lower b) Same c) Higher d) Not present e) All the above are wrong

7- The angle in NH_3 is 107° while in CH_4 is 109.5° due to
a) Temperature change b) Presence of unshared electron pairs c) Pressure effect
d) Non of the above e) All the above

8- All the compounds are covalent except
a) O_2 b) CH_4 c) NO d) CaO e) F_2

9- The persent composition of S in SO_2 is
a) 40% b) 32% c) 50% d) 74% e) 91%

10- The molarity of NaOH (40 g dissolved in 500 ml) solution is
a) 1M b) 2M c) 0.35M d) 0.5 M e) 6M

(Molar mass: H = 1, C = 12, O = 16, Na = 23, P = 31, S = 32)

(Atomic number: H = 1, Be = 4, B = 5, C = 6, N = 7, O = 8, F = 9, Mg = 12, Cl = 17, Sn = 50)

Best Wishes
Prof. Kamal Ibrahim
Prof. Nagwa Nawar
Prof. Sahar Mostafa
Dr. Raafat Mansour

جامعة المنصورة كلية العلوم قسم الرياضيات المادة: رياضيات أساسية (١) جبر وهندسة (ر١١١)		امتحان دور يناير ٢٠٠٩م الفرقة الأولي – المستوي الأول: برامج* الزمن: ساعتان - التاريخ: ٢٠٠٩/١/١٤ الدرجة الكلية: ٨٠ درجة

*برامج: كيمياء – نبات وكيمياء – ميكروبيولوجي – كيمياء حيوي – جيوفيزياء – جيولوجيا – فيزياء حيوي – علوم البيئة

أجب عن الأسئلة الآتية

السؤال الأول: (20 درجة)

(أ) أثبت باستخدام مبدأ الاستقراء الرياضي أن: $\frac{1}{1\times3}+\frac{1}{3\times5}+\ldots+\frac{1}{(2n-1)(2n+1)}=\frac{n}{2n+1}$ (10درجات)

(ب) حلل الكسر $\frac{x+8}{x^3-16x}$ إلي كسوره الجزئية. (10 درجات)

السؤال الثاني: (18 درجة)

(أ) أوجد قيمة $(1+i)^{3/4}$. (9 درجات)

(ب) بدون فك المحدد، أوجد قيمة x التي تحقق: $\begin{vmatrix}1 & -1 & 1\\ 1 & x & x^2\\ 1 & x^2 & x^4\end{vmatrix}=0$ (9 درجات)

السؤال الثالث: (22 درجة)

(أ) باستخدام معكوس المصفوفات، حل نظام المعادلات الخطية الآتية: (12 درجات)

$$\begin{aligned} x+y+2z&=9\\ 2x+4y-3z&=1\\ 3x+6y-5z&=0\end{aligned}$$

(ب) أوجد معادلة الخط المستقيم الذي يمر بنقطة تقاطع المستقيمين $2x+3y+5=0,\ x-3y+5=0$ ،

وعمودي علي المستقيم $x-2y+1=0$. (10 درجات)

السؤال الرابع: (20 درجة)

(أ) أوجد كل من: الرأس ومعادلة المحور ومعادلة الدليل والبؤرة وطول الوتر البؤري العمودي للقطع المكافئ :

$x^2-2x-4y-3=0$ ، ثم ارسمه. (10 درجات)

(ب) عين معادلة القطع الناقص الذي مركزه $(3,-5)$ ، وإحدى بؤرتيه $(3,-3)$ وطول محوره الأصغر يساوى $4\sqrt{3}$.

(10 درجات)

مع أطيب أمنيات أسرة التدريس بالتوفيق

جامعة المنصورة — المستوى الأول — دور يناير ٢٠٠٩
كلية العلوم — المادة: جبر و هندسة (ر١١١) — الزمن: ساعتان
قسم الرياضيات — برامج:رياضة- فيزياء- إحصاء و حاسب-فيزياء حيوي — التاريخ: ٢٠٠٩/١/١٤

أجب عن الأسئلة الآتية: (٨٠ درجة)

السؤال الأول: (٢٠ درجة)

(أ) أثبت باستخدام مبدأ الاستقراء الرياضي أن : $1^2+3^2+5^2+...+(2n-1)^2=\frac{n(4n^2-1)}{3}$

(ب) أوجد حل مجموعة المعادلات الآتية **باستخدام المصفوفات:**

$$3x+2y+z=3, x+y+z=2, x-3y+z=6$$

السؤال الثاني: (٢٠ درجة)

(أ) حلل الكسر الآتي إلى كسوره الجزئية: $\frac{4x-2}{(x^2-2x+1)(x^2+1)}$.

(ب) أوجد حل معادلة الدرجة الثالثة الآتية باستخدام طريقة كردان: $x^3-6x-4=0$.

السؤال الثالث: (٢٠ درجة)

(أ) أوجد مفكوك $\cos^5\theta$ بدلالة جيوب و جيوب تمام الزاوية θ .

(ب) أوجد قيمة c بحيث تمثل المعادلة $x^2-5xy+4y^2+x+2y+c=0$ خطين مستقيمين ، ثم أوجد المعادلة المشتركة للمستقيمين المارين بنقطة تقاطع هذين المستقيمين و عموديين عليهما.

السؤال الرابع: (٢٠ درجة)

(أ) أوجد المحل الهندسي لنقطة تتحرك في المستوى بحيث يكون بعدها عن النقطة (5,0) يساوي نصف بعدها عن المستقيم $x=20$.

(ب) أوجد إحداثي كل من البؤرة و الرأس ومعادلتي الدليل و المحور و طول الوتر البؤري العمودي للقطع الذي معادلته $y=x^2-4x+2$ ثم ارسمه.

تمنياتنا بالتوفيق و التفوق ،،،

Mansoura University
Faculty of Science
Zoology Department
Subject: Zoology
Courses: Principals of cell biology, histology and genetics (Z 101)

Educational year: 1st year science
Branch: Biology; Zoology/chemistry, Botany/chem., Microbiology, Environmental S
Date: 26/1/2009
Time allowed: 2 hrs
Full mark: 60 Mark (20/question)

Attempt only three questions

1. Write short accounts on:
   a) Gene structure in prokaryotes and eukaryotes. 10 Marks
   b) Chromosome morphology. 10 Marks

2. Only with drawings describe:
   a) DNA labeling by primer extension. 10 Marks
   b) Stages of mitosis. 10 Marks

3. Only with drawings describe:
   a) Plasma membrane. 10 Marks
   b) Types of epithelial tissues giving an example for each type. 10 Marks

4. Write all what you know about:
   a) Mitochondria. 10 Marks
   b) Cells and fibers of the proper connective tissue. 10 Marks

Our Best Wishes
Examiners:
1. Prof. Dr. Ahmed M. Abdeen
2. Ass. Prof. Sherif H. Abdeen
3. Dr. Doaa A. Sakr
4. Dr. Mohamed Sobh