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

جامعة المنصورة
كلية العلوم
قسم النبات
المنصورة - مصر

Final Examination in Botany
Jan. 2010

Educational Year: First Level **Program (Branch): Biology**
Subject: Bot (101) **Course(s): Systematic Botany**
Time: 2 hrs **Date: 16/1/2010** **Full mark:** 60 **Question mark: 15**

Answer the following questions:

Q1: Select the correct response for the following statements: (15)

1- The green alga *Chlamydomonas* is (unicellular non motile – Colonial non motile – colonial motile – unicellular motile).
2- *Agaricus* belongs to class (Oomycetes – Deutromycetes- Basidiomycetes- myxomycetes).
3- Bacteria have cell wall composed mainly of (pectin – Peptidoglycan – cellulose- chitin).
4- All of these plants have vascular system except (Bryophytes – Gymnosperms- Angiosperms – Ferns).
5- Zygospore is a result of (asexual –sexual –vegetative) reproduction.
6- Main chemical components in viruses (protein – nucleic acid – protein and nucleic acid).

Q2: Complete the following sentences: (15)

1- Bacteria belong to kingdom ---------, however, algae belong to kingdom ----------.
2- *Aspergillus* is classified under class ----------, however, *Rhizopus* is related to class ----------.
3- In Bryophytes, the root-like structure is termed ----------.
4- All photosynthetic organisms are eukaryotic except ----------.
5- The fusion of two morphologically similar gametes in algae is known as ----------.
6- ---------- are the viruses those influent Bacteria.

Q3: Match true (√) or false (×) for each of the following: (15)

1- *Spirogyra* reproduce sexually by conjugation .
2- Monocot plants are related to Angiosperms .
3- *Spirulina* belongs to kingdom Protista .
4- Pinus is classified under Gymosperms .
5- All Bacteria are heterotrophic .
6- Viruses can be cultivated on synthetic media .

Q4: Compare between each two of the following: (15)

1- Flagella and Fimberia (Pili)
2- Bryophyta and Petridophyta
3- Kingdom moneria and kingdom: Plantae
4- Chlorophyceae and Bacifloraphyceae

Answer the following:

5- Design the life cycle of Funaria OR a fern.
6- Characters of viruses and lytic cycle.

Examiners: Prof. Abd-Eldayem Sherif, Prof. Mervat Hosney, Dr. Adel El-Morsy, Dr. Doaa Darwish

Mansoura University	**First Level**
Faculty of Science	**Date: Jan. 2010**
Chemistry Department	**Time Allowed : 2 hours**
Subject: Chemistry	**Full Mark: 60 Marks**
Course: Basic Inorganic Chemistry (121)	

ANSER THE FOLLOWING QUESTIONS:

1) a- **How many nitrogen atoms are there in 0.34 g N_2O_5 (N = 14, O = 16)** **[4 Mark[**

b- **Diagram the resonance forms of SO_2 (S = 16, O =8)** **[4 Mark]**

c- **Use VSEPR theory to predict the shape of the following:**

i) SCl_4 ii) BF_3 (S = 16, Cl = 17, B = 5, F = 9) **[6 Mark]**

d- **Explain Why:** **[6 Mark]**

i) N_2 is more stable than O_2 using molecular orbital theory (N = 7).

ii) The second ionization energy is more than the first.

2) a- **A sample compound containing carbon and hydrogen weighs 2.8 g is burned in air and produced 3.6 g CO_2 and 8.8 g H_2O, If its molecular weight is 140, What is molecular formula?** **[8 Mark]**

b- **Diagram Lewis structure for the following:** **[6 Mark]**

i) ClO_4^- ii) CO_3^{--}

c) **Calculate the wavelength (nm) and energy (j) of the line of $_{20}Ca^{40}$ when its last electron jumps to its sixth level (R= 109678 cm^{-1}, h= 6.066x10^{-34} j, C = 3x10^8 ms^{-1})** **[6 Mark]**

3) a- **Nitrogen reacts with oxygen to form NO_2. If 0.8 g of N_2 mixed with 0.75 g O_2. Calculate the amount of NO_2** **[6 Mark]**

b- **Which of the following sets of quantum numbers are allowed for an electron in the atom:** **[4 Mark]**

	n	l	m	s
1)	4	2	+2	-½
2)	5	3	0	-½
3)	2	2	0	-½
4)	3	1	-1	0

c- **According to the valence bond theory, predict the type of hybridization in the following: PCl_5 and H_2S (P = 15, Cl = 17, H = 1, S = 16)** **[6 Mark]**

d- **Draw Born-Haber cycle for Na_2O** **[4 Mark]**

Examiners: Prof Dr El-Asmy; Prof Dr Abo El-Reash; Prof Dr Nawar

Mansoura University
Faculty of Science
January, 27th, 2010

First year
Time allowed: 2hrs
English Language Exam

Section One: Reading Skills

Read the following passage and then answer the questions that follow:

Carbon is a very special material, and there are atoms of it in many things: for instance the "lead" of a pencil is made of carbon, coal is made of carbon, and so are diamonds. A number of other things such as wood, plants and oil are made very largely of carbon, but have other substances as well. The molecules which make up our bodies depend on carbon.

Carbon atoms are so special because they have the property of joining together into molecules in different ways. For instance the atoms of coal and diamonds are joined together to make crystals, but each in its own patterns, are consequently from carbon atoms come two things so different to look at. A pencil "lead" is also carbon, but here the atoms are arranged not in crystals but in flat sheets, far and too small, of course, to see. When we press a pencil onto a paper, the paper pulls some of the sheets atoms away, and these make the pencil marks. Paper may feel smooth, but it is rough enough to slide off some sheets of atoms. If you try to write on glass and cellophane, your pencil leaves no marks, for these are too smooth to pull the sheets away from the pencil "lead".

Besides forming into crystals and making sheets, carbon atoms can also form into long series of atoms, like chains. No other substance can do this so well. Each chain of carbon atoms can also have other substances attached to the links of the carbon chain. If the carbon chain has hydrogen atoms joined on to it, we have what scientists call a "hydrocarbon". Hydrocarbons give us molecules of oil, petrol, paraffin, tar, and neutral gas, like that found under the North Sea.

Scientists have discovered that carbon chains can be very long, and can contain thousands of both carbon and other atoms. These long carbon chains are single molecules, but much more complicated than the single molecules of water, for instance, which are made of only three atoms (one of oxygen and two of hydrogen). These are the molecules of very complicated substances such as complicated ways. They can also be arranged in rings. The different kinds of oils, such as petrol and paraffin, depends on the way in which the atoms are arranged can make the petrol or paraffin from the oil out of an oil-well by heating it enough to change the pattern of the atoms in its molecules.

The chemist today has found out how to make new substances by heating materials made of hydrocarbon chains, such as oil or coal, in giant pressure cookers and mixing with them other chemicals. When very hot indeed, the atoms of the other chemicals fit into the hydrocarbon chain and combine to make molecules of a new pattern. The result of this may be a plastic for making cups or washing-up bowels, or an artificial fiber for making clothes. Nylon, for example, is a man-made fiber with molecules made out of carbon chains in which atoms of nitrogen, hydrogen, and oxygen fit in a particular arrangements. Milk contains carbon, and the chemist can

extract these and reform them into a plastic for making solid things such as buttons and door handles.

The carbon chain in living things are even more complicated than those in oils, plastics, or artificial fibers, and may contain hundreds of atoms; there is often more than one chain in each molecule, and these may be twisted together like ropes or bundles. It is a difficult problem for the scientist to unravel these complicated molecules, and therefore, although he can make an artificial fiber, has not yet been able to fit the molecules together to make a living plant or animal.

1. Answer the following questions:

a. What is the difference between petrol and paraffin?
b. Why are carbon atoms special?
c. How is hydrocarbon made?
d. Why the pencil doesn't leave marks on glass?
e. How can the scientists make plastic?

2. Read the following sentences and then decide they are True or False:

a. Carbon atoms can join just in one way. ( )
b. Hydrocarbons give us molecules of paraffin only. ( )
c. Milk contains carbon chains. ( )
d. The carbon chains are more complicated in oils, plastics or artificial fibers than those in living things. ( )

3. Complete the following sentences according to the passage:

a. The molecules which make up our bodies depend on_____.
b. When we press a pencil onto paper, the paper pulls some of the_____of_____away.
c. If the carbon chain has hydrogen atoms joined on to it, so we have what is called_____.
d. The chemist has found out how to make new substances by_____ materials made of_____chains.

4. Choose the correct answer:

1- The carbon atoms in the pencil "lead" are arranged in _____.
a. crystals b. chains c. rings d. sheets

2- The chemist can extract the carbon chains which are in_____and reform them into plastic.
a. plants b. oil c. milk d. tar

3- The long carbon chains are single_____.
a. substances b. molecules c. atoms d. chains

4- By_____materials made of hydrocarbon and mixing with other chemicals, the chemist has found the way of making new substances.
a. heating b. coiled up c. joining d. using

5. What do the underlined words refer to?

1. They (paragraph 2) 2. These (paragraph 2)
3. They (paragraph 4) 4. Those (paragraph 6)

Section Two: Language Skills:

1- Put the word in brackets into the correct form. You will have to use prefixes and/or suffixes.

1. He was sitting _____ in his seat on the train. (comfort)
2. The team that he supported were able to win the_____ . (champion)
3. She looked at her _____ in the mirror. (reflect)
4. The bacteria are so small that you need a _____ to see them. (scope)
5. She looked at him _____ , and started to cry. (happy)

2- Give *two* words from the following roots using the needed suffixes or prefixes:

1. Cycle
2. Auto
3. Logy
4. Scope
5. Leg

3- Please provide a conjunction in the following sentences.

1. Either Andrew _____ Peter will help our pastor.
2. Did the team win _____ lose?
3. The team tried hard _____ still lost the game.
4. The police officer spoke politely _____ firmly.
5. The story was long _____ interesting.

Section Three: Writing Skills:

- The value of time.
- Security on the internet.
- The effect of global warming.

Choose one of the above topics to write on. Follow the instructions below:

1- Write *at least* **4** paragraphs
2- Introduction and conclusion *not less than* **5** sentences
3- Body paragraphs *not less than* **8** sentences
4- Show your plan (tree).
5- You must identify the Linking words, if used.

GOOD LUCK

جامعة المنصورة كليـــة العلـــوم	امتحان دور يناير ٢٠١٠ المستوى الأول (مستجدون) بنظام الساعات المعتمدة	المادة: حقوق الإنسان تاريخ الامتحان: ٢٠١٠/١/٢٣

أجب عن السؤالين الآتيين:

السؤال الأول:-

توجد علاقة وثيقة بين احترام المجتمع لحقوق الإنسان وكفالة حمايتها من ناحية، والتقدم كقيمة اجتماعية من ناحية أخرى، اشرح هذه العبارة؟

السؤال الثاني:

في إطار دراستك لحق الإنسان في الحياة، تكلم عن الاختلافات الفقهية الو ردة بشأن مدى ضرورة الإبقاء على عقوبة الإعدام أو إلغائها، مع بيان رأيك الشخصي في هذه المسألة؟

مع أطيب التمنيات بدوام التوفيق

Faculty of science. Jan.2010

Zoology department Final Exam. Time allowed:2hrs

Nutrition (Z, 125) Biochemistry students 1st level.

Answer all the following questions.

Question 1

Write as shown in brackets. (15 Marks)

1. B-oxidation.....(in which type of food stuff is done).
2. Glycogenolysis..... (Identify& mention hormone affect it).
3. Ornithine Krebs cycle.....(Illustrate).
4. Gastrin enzyme is important for gastric juice secretion(put line under a wrong word).
5. Serous cells secrete mucin .....(v or X).
6. Oxyntic cells secrete HCl(If it is wrong add line under the wrong word).
7. Small intestine is important for absorption as it has numerous....(Complete).
8. Enzymes that acts by hydrolysis is called.....(Complete).
9. Psychic state do not play role in enzyme secretion.(v or X).
10. Enzymes are denaturated above.....(Complete).
11. Ileocoecal valve prevent return of digested food to.....(Complete).
12. Active transport release energy.....(change a word to make the sentence write).
13. HCl is important to control optimum temperature in stomach (add line under the wrong word).

Question 2

(15Marks)

a) Briefly illustrate content, function and hormone affected pancreatic juice secretion.

b) Follow up digestion and route of absorption of a carbohydrate diet.

Question 3

a) Fill in the blanks .....(10 Marks)

1. ... . stimulates contraction of the intestine, peristalsis .
2. The active form of Vitamin D3 synthesis (production) takes place in .....and .....
3. The most important source of energy in the body is.....
4. The earliest manifestation of vitamin A deficiency is.....
5. Diseases caused by nutritional deficiencies.....&.....
6. The food which has the highest vitamin E content is .....
7. Dietary Sources of Vitamin C are.....
8. Iodine is a trace mineral critical for the synthesis of .....

9. A simple lipids composed of ester of fatty acids with alcohols other than glycerol .....
10. The body of an adult male is approximately ....water, while an adult female is ..... water.

1)	2)	3)		5)
6)	7)	8)	9)	10)

b) What is meant by each of the following:.....(10 Marks)

1. The balanced diet.
2. High biological proteins.
3. Saturated fats.
4. Malnutrition.
5. Biological importance of carbohydrates

Question 4

Choose the correct answer.....(10 Marks)

1- Which of the following is(are) NOT an energy nutrient? A)carbohydrates B)Fats. C)Alcohol D) Vitamins E) Proteins.	**2- Which of the following are organic nutrients?** A)carbohydrate B)Fats. C)Minerals D) Vitamins E) Water.
3- Which of the following is a type of carbohydrate that does NOT yield energy? A)Alcohol. B)simple sugars. C) fiber (Cellulose) D) starches.	**4- When a nutrient is said to be "essential," it means that it is** A)very important to the body. B)one which must be provided in the diet. C) one that the body can manufacture. D) something that provides energy to the body.
5- Which of the following is NOT one of the six classes of nutrients? A)carbohydrates B)Fats. C)Alcohol D) Vitamins E) Proteins.	**6- Inadequate supplies of this vitamin inhibit liver production of (Prothrombin) plasma protein** A) vitamin D. B) vitamin K. C) vitamin A D) vitamin C. E) vitamin B.
7-This participates in the synthesis of hemoglobin . A)Copper B) Chloride C) Calcium D) Iron E) Iodine	**8- What is the synonym of vitamin C.** A)Tocopherol B) Folic Acid C) Ascorbic acid D) Thiamine E) Retinol
9-Which of the following is not a circulating energy substrate? A) Amino acids. B) Fatty acids. C) Glycerol. D) Polysaccharides.	**10-Essential amino acids include** A) alanine. B) serine. C) proline. D) Methionine. ضع الحرف الدال على الإجابة الصحيحة أو الإجابة الصحيحة قرين رقم السؤال في صندوق الإجابات بعد تخطيطه في كراسة الإجابة كالتالي:

1)	2)	3)	4)	5)
6)	7)	8)	9)	10

Mansoura University Faculty of Science Physics Department		جامعة المنصورة كلية العلوم قسم الفيزياء

First Term Examination Jan 2010

Academic Level: First Level — Program: Geo&Chem Zool&,Bio Chem,Bot.Env

Time: 2 Hours

Date: Jan. 2010 — Subject: Physics 101

Full Mark: 60 Marks — Courses: Heat, Prop. Of Matter

Answer **ALL** Questions

[1] a- If the acceleration (a) of a particle moving with uniform speed (v) in a circle of radius (r) is proportional to r^m and v^n. Determine the values of n and m, write the simplest equation of the acceleration. **[6] Mark**

b- A solid brass sphere has a volume of 0.5 m^3 is initially on air at pressure of $1x\ 10^5$ Pa. The sphere is lowered into the ocean to a depth where the pressure is $2x\ 10^7$ Pa. If the bulk modulus is $6.1x\ 10^{10}$ Pa. Find :

i) How much does the volume change at this depth

ii) The change in the radius of the sphere at this depth. $V = 4/3\ (\pi\ r^3)$ **[9] Mark**

[2] a- How much energy is required to change 30 g 0f ice at -10°C into steam at 120°C.where C_{ice}= 2090J/kg°C, L_f=3.33x10^{5}J/kg, C_w=4190J/kg°C, L_v=2.26x10^{6}J/kg , C_s=2101J/kg°C **[5] Mark**

b-. A 100 g block is attached to a horizontal spring and execute simple harmonic motion with a period of 0.5 sec. If the total energy of the system is 2 J, Find:

i) The force constant (k)of the spring

ii) The amplitude of the motion

iii) The maximum velocity and the maximum acceleration of the block **[10] Mark**

[3] a- Prove that Bernoulli's equation is a very good example for conservation of energy. **[7] Mark**

b – At 20.0°C, an aluminum ring has an inner diameter of 5 cm and a brass rod has a diameter of 5.05 cm. (a If both are heated together, what temperature must they both reach so that the ring just slips over the rod? Would this process work? .

$\alpha_{Al} = 24x10^{-6}\ (C^o)^{-1}$ & $\alpha_{Br} = 19x\ 10^{-6}\ (C^o)^{-1}$ **[8] Mark**

[4] a- Define The following: i) Specific heat ii) Isobaric process iii) Latent heat of melting iv) Poison's ratio v) Ice point vi) Young's modulus vii) Thermal conductivity **[7] Mark**

b- A silver bar of length 30 cm and cross-sectional area 1 cm^2 is used to transfer heat from 100 °C reservoir to 0 °C reservoir .How much heat is transferred per second (the thermal conductivity of silver is=427 W/m.°C) **[8] Mark**

Examiners:!- Dr. Maysa ISMAIL — 2- Dr.E.M.AbdELRAZEK

3- Dr. Nabil KINAWY

Mansoura University **Faculty of Science** **Chemistry Department** **Subject: Chemistry** **Course(s): Physical Chemistry**	كلية العلوم جامعة المنصورة	**First Term** **First level Biochemistry Students** **Date :30 Jan. 2010** **Time Allowed: 2 hours** **Full Mark: 60 Marks**

Answer All questions

1.a) In the light of Dalton's law, prove that $P_A = X_A P_t$ **[4 Marks]**

b) Calculate the root – mean square speed of a gas from the kinetic equation of gases. **[4 Marks]**

c) What is the meaning of van der Waal's equation . **[4 Marks]**

d) Calculate the molecular weight of a gas if 0.25 grams of this gas occupy 215 ml at 0.813 atm. **[3 Marks]**

at 27°C

2.a) Discuss the relation between Henry's law and Raoult's law . **[4 Marks]**

b) What is meant by a colligative properties . **[4 Marks]**

c) What is the freezing point of a solution in which 20.0 grams of sucrose ($C_{12}H_{22}O_{11}$) is dissolved in 400 grams of water. . (K_f=1.86 °C/ mol for water C = 12 , O = 16 , H = 1) . **[4 Marks]**

d) Explain the meaning of Vant – Hoff factor and its relation with the degree of dissociation . **[3 Marks]**

3.a) For the following reversible reaction : $aA + bB \rightleftharpoons cC + dD$

Derive and expression for K_C **[4 Marks]**

b) In the light of Le chatelier's principle show the effect of concentration, pressure and temperature on the following reaction.

$N_2(g) + 3H_2(g) \rightleftharpoons 2\,NH_3(g)$ $\quad \Delta H = -94.4KJ$ **[4 Marks]**

c) What is the meaning of buffer solution, calculate its pH **[4 Marks]**

d) K_C for the reaction below at 450°C : $Kc = 1.01$

$PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

Evaluate Kp for the reaction at 450°C. **[3 Marks]**

4.a) What is the meaning of the following : pH , PK_w, K_a and K_b **[4 Marks]**

b) Write notes on the common ion effect **[4 Marks]**

c) What is the meaning of Hess's law. Given the following standard heat of reactions .

$2A \rightarrow B + C$ $\quad \Delta H° = -5.0$ KJ

$B + 2A \rightarrow E$ $\quad \Delta H° = -15.0$ KJ

Find $\Delta H°$ for each of the following reactions :

i) $6A \rightarrow 3B + 3C$ **ii)** $B + C \rightarrow 2A$ **iii)** $2B + C \rightarrow E$ **[4 Marks]**

d) At 25°C 0.00188 grams of AgCl dissolves in 1 Liter of water. What is the Ksp of AgCl (Ag=107.5, Cl = 35.5). **[3 Marks]**

Good Luck

Examiners : Prof. Dr. Yehia Elewady

المستوى : الأول المادة: جبر وهندسة كود المادة : ر ١١١	قسم الرياضيات – كلية العلوم	الفصل الدراسي الأول: دور يناير ٢٠١٠ التاريخ: ١٨ / ١ / ٢٠١٠ م الزمن: ساعتان
برامج : كيمياء – الكيمياء الحيوية – ميكروبيولوجى – كيمياء وحيوان – كيمياء و نبات– علوم بيئة – جيولوجيا – جيوفيزيقا		

أجب عن الأسئلة التالية:-

السؤال الأول: (٢٠ درجة)

أ- اثبت باستخدام الاستنتاج الرياضي أن $1^2+2^2+3^2+\ldots+n^2=\frac{1}{6}n(n+1)(2n+1)$ (١٠ درجات)

ب- حلل الكسر $\frac{6x+2}{(x-2)(x^2+x+1)}$ إلى كسوره الجزئية. (١٠ درجات)

السؤال الثاني: (٢٠ درجة)

أ- عين معادلة القطع المكافئ الذي رأسه $(-2,3)$ وبؤرته $(1,3)$. ثم أوجد معادلتي المحور والدليل و طول الوتر البؤري العمودي و ارسمه (١٠ درجات)

ب- أوجد مفكوك كل من $\sin 4\theta, \cos 4\theta$ بدلالة قوى $\sin\theta, \cos\theta$. (١٠ درجات)

السؤال الثالث: (٢٠ درجة)

أ- باستخدام قاعدة كرا مر أوجد حل المعادلات الآتية (١٠ درجات)

$$x-4y+z=3\ , \qquad 2x-y-2z=5\ , \qquad x-y+z=6$$

ب- ارسم القطع $x^2+4y^2+6x+16y+21=0$

موضحا جميع المعلومات الخاصة به. (١٠ درجات)

السؤال الرابع : (٢٠ درجة)

أ- أوجد المقياس و السعة للعدد المركب $z=1+\sqrt{3}i$ ثم أوجد قيمة z^6 (١٠ درجات)

ب – بين ما إذا كان المستقيمين $3x-2y+1=0$ & $x+2y-5=0$ متقاطعين أم لا.

وإذا كان متقاطعين أوجد معادلة المستقيم المار بنقطة تقاطعهما وعمودي على المستقيم $2x+3y+7=0$ (١٠ درجات)

مع أطيب التمنيات بالنجاح و التوفيق

أسرة التدريس