



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- Zygosporangium 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 infect 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 Gymnosperms . . . . .
  - 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 Fimbria (Pili)
  - 2- Bryophyta and Petriophyta
  - 3- Kingdom Monera and kingdom: Plantae
  - 4- Chlorophyceae and Bacillariophyceae
- Answer the following:
- 5- Design the life cycle of *Funaria* OR a fern.
  - 6- Characters of viruses and lytic cycle.

<p>الفصل الدراسي الأول: دور يناير ٢٠١٠ التاريخ: ١٨ / ١ / ٢٠١٠ م الزمن: ساعتان</p>	 <p>قسم الرياضيات - كلية العلوم</p>	<p>المستوى : الأول المادة: جبر وهندسة كود المادة : ر ١١١</p>
<p>برامج : كيمياء - الكيمياء الحيوية - ميكروبيولوجي - كيمياء وحيوان - كيمياء و نبات - علوم بيئة - جيولوجيا - جيوفيزيكا</p>		

أجب عن الأسئلة التالية:-

(٢٠ درجة)

السؤال الأول:

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

(١٠ درجات)

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

(٢٠ درجة)

السؤال الثاني:

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

(١٠ درجات)

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

(٢٠ درجة)

السؤال الثالث:

أ- باستخدام قاعدة كرامر أوجد حل المعادلات الآتية  
 $x - y + z = 6, \quad 2x - y - 2z = 5, \quad x - 4y + z = 3$

(١٠ درجات)

ب- ارسم القطع  $x^2 + 4y^2 + 6x + 16y + 21 = 0$

موضحا جميع المعلومات الخاصة به.

(٢٠ درجة)

السؤال الرابع :

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  $x + 2y - 5 = 0$  &  $3x - 2y + 1 = 0$  متقاطعين أم لا.

وإذا كان متقاطعين أوجد معادلة المستقيم المار بنقطة تقاطعهما وعمودي على المستقيم

(١٠ درجات)

$2x + 3y + 7 = 0$

أسرة التدريس

مع أطيب التمنيات بالنجاح و التوفيق

Mansoura University  
 Faculty of Science  
 Chemistry Department  
 Subject: Chemistry  
 Course: Basic Inorganic Chemistry  
 (121)

First Level  
 Date: Jan. 2010  
 Time Allowed : 2 hours  
 Full Mark: 60 Marks

**ANSWER 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)  $CO_3^{2-}$
- 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 =  $109678\text{ cm}^{-1}$ ,  $h = 6.066 \times 10^{-34}\text{ j}$ ,  $C = 3 \times 10^8\text{ ms}^{-1}$ ) [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 | $-\frac{1}{2}$ |
| 2) | 5 | 3 | 0  | $-\frac{1}{2}$ |
| 3) | 2 | 2 | 0  | $-\frac{1}{2}$ |
| 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  
Zoology Department

Date: 30 January 2010  
Time : 2 hours  
Full Mark: 60

**Final Exam in Introduction to Cell Biology, Histology & Genetic**

**Z101**

**First semester, First level for Biology students**

**Answer (All ) the following Questions.**

**1-Compare between each two of the following:**

**(15 marks)**

- a- prokaryotic and eukaryotic cells
- b- Lysosomes and Ribosomes
- c- Mitosis and Meiosis

**2- Describe briefly the structure and functions of the following (Using labeled diagram):**

**(15marks)**

- a- Mitochondria
- b- Hyaline cartilage
- c- Chromosome at metaphase

**3- Write on the main characteristics of the following:**

**(15 marks)**

- a- Epithelial tissues
- b- Connective tissues
- c- Plasma membrane

**4-Define all of the following terms:**

**(15 marks)**

- a- karyotype
- b- Aneupoidy
- c- Deletions

**Our best wishes**

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**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 bowls, 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

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

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 الواردة بشأن مدى ضرورة الإبقاء على عقوبة الإعدام أو إلغائها، مع بيان رأيك الشخصي في هذه المسألة؟

مع أطيب التمنيات بدوام التوفيق





First Term Examination Jan 2010

Academic Level: First Level

Program: Geo&Chem Zool&,Bio

Time: 2 Hours

Chem,Bot.Env

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  $0.5 \text{ m}^3$  is initially on air at pressure of  $1 \times 10^5 \text{ Pa}$ . The sphere is lowered into the ocean to a depth where the pressure is  $2 \times 10^7 \text{ Pa}$ . If the bulk modulus is  $6.1 \times 10^{10} \text{ Pa}$ . Find :
- i) How much does the volume change at this depth
- ii) The change in the radius of the sphere at this depth.  $V = \frac{4}{3} (\pi r^3)$  [9] Mark
- [2] a- How much energy is required to change 30 g Of ice at  $-10^\circ\text{C}$  into steam at  $120^\circ\text{C}$ . where  $C_{\text{ice}} = 2090 \text{ J/kg}^\circ\text{C}$ ,  $L_f = 3.33 \times 10^5 \text{ J/kg}$ ,  $C_w = 4190 \text{ J/kg}^\circ\text{C}$ ,  $L_v = 2.26 \times 10^6 \text{ J/kg}$ ,  $C_s = 2101 \text{ J/kg}^\circ\text{C}$  [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  $20.0^\circ\text{C}$ , 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? .  $\alpha_{\text{Al}} = 24 \times 10^{-6} (\text{C}^\circ)^{-1}$  &  $\alpha_{\text{Br}} = 19 \times 10^{-6} (\text{C}^\circ)^{-1}$  [8] Mark
- [4] a- Define The following: i) Specific heat ii) Isobaric process iii) Latent heat of melting iv) Poisson'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  $1 \text{ cm}^2$  is used to transfer heat from  $100^\circ\text{C}$  reservoir to  $0^\circ\text{C}$  reservoir .How much heat is transferred per second ( the thermal conductivity of silver is  $=427 \text{ W/m}^\circ\text{C}$ ) [8] Mark

Examiners:- Dr. Maysa ISMAIL  
3- Dr. Nabil KINAWY

2- Dr.E.M.AbdELRAZEK

Mansoura University  
Faculty of Science  
Chemistry Department  
Subject: Chemistry  
Course: Basic Inorganic Chemistry  
(121)

First Level  
Date: Jan. 2010  
Time Allowed : 2 hours  
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- b- Which of the following sets of quantum numbers are allowed for an electron in the atom: [4 Mark]
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Examiners: Prof Dr El-Asmy; Prof Dr Abo El-Reash; Prof Dr Nawar