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
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

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

Mansoura University Faculty of Science Physics Department		Educational Year :First level Date : 20/1/2010 Time allowed : 2 hours
Course : Heat & properties of matter (Phys. 101)		Full Mark: 60.

Answer the following questions. The questions are in two pages

1. a) Explain giving mathematical details: [8 Mark]
I- The banking of the curved railway lines and roads.
II- What do you expect in case of there is no banking in these roads? What do you suggest to get safety trip?

b) Prove that the moment of inertia (I) of a solid sphere about its diameter is I= $\frac{2}{5}MR^2$, where M and R are the mass and the radius of the sphere respectively. [6 Mark]

c) Show that the compound pendulum executes simple harmonic motion and obtain an expression for its time period. [6 Mark]

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2. a) Find the radial heat flow of a spherical container with internal & external radii and temperatures $(r_1 \& r_2)$ and $(\theta_1 1 \& \theta_2)$ respectively. [6 Mark]

b) What mass of steam initially at 120 ^{o}C need to worm 300g of water in 100g glass container from 25 ^{o}C to 50 ^{o}C ? [The specific heat capacity: of Steam= 0.5 $cal/g.K$, of water =1 $cal/g.K$, of glass=0.2 $cal/g.K$ and the latent heat of vaporization of water= $0.5x10^3$ cal/g]. [6 Mark]

c) A glass flask with volume of 400 cm^3 is filled to the brim with mercury at 25°C. How much mercury is overflows when the temperature of the system is raised to 100°C? [The volume expansion coefficient of glass=$10^{-5}/K$, and of mercury=$1.8x10^{-4}/K$]. [5 Mark]

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3. **Choose the correct answer** [23 Mark]

كل اختيار صحيح بدرجة ويخصم نصف درجة للاختيار الخاطئ

1. The unique temperature at which the ice, pure water and water vapor can exist together in equilibrium is known as
   A) lower fixed point B) upper fixed point C) tripe point
2. The temperature change of 45°C on the Fahrenheit scale is
   A) 25°F B) 45°F C) 81°F
3. The quantity of heat required to raise the temperature of one gram of water one Celsius degree is known as
   A) Calorie B) specific heat capacity of water C) both A) and B)
4. Thermal conduction occurs in non-metallic solids and liquids as a result of
   A) molecules movement B) free electrons movement C) molecules collisions
5. The main advantage of the thermocouples is that, their heat capacities are
   A) very low B) very high C) neither A) nor B
6. The temperature gradient .....with the distance from the hot end of perfectly uniform lagged bar
   A) is constant B) decreases C) increases

7. The temperature gradient .....with the distance from the hot end of an unlagged uniform bar
   A) is constant B) decreases C) increases
8. The thermal resistance of a wall of thickness d, section area A, and thermal conductivity coefficient K, is
   A) $\frac{d}{KA}$ B) $K\frac{d}{A}$ C) $\frac{KA}{d}$
9. According to the Prevost's theory of exchange, a body emits radiation at rate determined by the nature of its surface and
   A) its temperature B) its surroundings' temperature C) both A) and B)
10. A black body emits radiations which depends on
   A) its temperature B) nature of its surface C) both A) and B)
11. The work done adiabatically by an ideal gas .....its temperature.
   A) decreases B) increases C) keeps constant
12. The heat energy transferred to the system of ideal gas isothermally equals the
   A) work done by the system B) change of internal energy C) either A) or B)
13. The heat energy transferred to the system of ideal gas isovolumetrically equals the
   A) work done by the system B) change of internal energy C) either A) or B)
14. The direction of the surface tension force is..... to the surface of the liquid.
   A) tangential B) perpendicular C)makes 45°
15. The viscosity of a fluid is a measure of the
   A) internal friction of a fluid B) resistance to flow a fluid C) both A) and B)
16. The reason that the free surface of a liquid always tends to have minimum area is to.....the potential energy of the molecules in the surface film.
   A) keep constant B) increase C) decrease
17. The plastic deformation is a measure of ..... of a material
   A) elasticity B) brittleness C) ductility
18. The excess pressure inside a spherical soap bubble whose radius r and surface tension T is
   A) $\frac{2T}{r}$ B) $\frac{T}{2r}$ C) $\frac{4T}{r}$
19. The angle of contact between the solid and liquid depends upon
   A) the nature of the liquid and solid
   B) the angle of inclination of the solid to the liquid surface C) both A) and B)
20. The pressure of a steady, non-viscous, irrotational, and incompressible fluid .....as the speed of fluid increases
   A) remains constant B) increases C) decreases
21. According to Torricelli's theory, the escape velocity of fluid from hole of a tank of depth h and cross section area A is
   A) $2\sqrt{gh}$ B) $A\sqrt{2gh}$ C) $\sqrt{2gh}$
22. A $10^8 Pa$ stress is applied to a steel wire having $10m$ long, knowing that, the Young's modulus for steel is $2x10^{11}Pa$. Then the elongation of the wire is
   A) $0.01m$ B) $0.25x10^{-5}m$ C) $2x10^{-3}m$
23. Knowing that the Young's modulus of a material is Y , Poisson's ratio is $\frac{1}{3}$, the Bulk modulus is
   A) $2Y$ B) $\frac{1}{3}Y$ C) $0.5Y$

With my best wishes

Dr. Hassan Elhadidy

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

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