

1. اعداد الطالب - صيغة كيميائية - علم النبات  
 2. اسم الطالب في العنونة (ع 10)

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



First Term  
 First Level  
 Date: 31 Dec., 2011  
 Time Allowed: 2 Hours  
 Full Mark: 60 Marks

**Answer the following question**

1) A- What is the characteristic wavelength of an electron with a velocity of  $5.97 \times 10^6$  m/s? (The mass of the electron is  $9.11 \times 10^{-28}$  g and Planck's constant (h) is  $6.63 \times 10^{-34}$  Js). (15 Marks)

B- Write short notes on the following:

- i- Pauli exclusion principle.
- ii- Hund's rule.

C- Draw Born Haber cycle of NaCl.

2) A- Draw the Lewis structure for  $\text{CO}_3^{2-}$  (15 Marks)  
 ( ${}^6\text{C}$ ,  ${}^8\text{O}$ )

B- Use VSEPR theory to predict the shapes of the following:



C- Complete the following table:

Z	Electronic Configuration	Period number	Group number	Quantum Numbers			
				n	l	m	s
15	.....	.....	.....	....	....	....	....
26	.....	.....	.....	....	....	....	....

3) A- Which of the following elements has the largest ionization energy? (15 Marks)  
 i. Na      ii. Ne      iii. F      iv. K      v. Rb

B- Which of the following has the greatest electron affinity (most negative value)?

- i. Cl      ii. K      iii. He      iv. Na      v. Rb

C- Which of the following pairs are larger in size?

- i.  $\text{Fe}^{2+}$ ,  $\text{Fe}^{3+}$       ii. N,P      iii. N,F      iv. S, $\text{S}^{2-}$

D- Which of the following molecules has  $sp^3$  hybridization and a dipole moment?

- i.  $\text{SiH}_4$       ii.  $\text{BF}_3$       iii.  $\text{NH}_3$       iv.  $\text{PCl}_5$

4) A- How many grams of  $\text{CO}_2$  will be formed when a mixture containing 1.93 g ethylene ( $\text{C}_2\text{H}_4$ ) and 5.92 g oxygen is ignited? If the actual yield 3.48 g  $\text{CO}_2$ , what is the percentage (%) yield of  $\text{CO}_2$ ? (15 Marks)

B- How many ml of 17 M  $\text{NH}_3$  must be diluted to 500 ml to make a 0.75 M solution?

C- Choose the appropriate answer and give the reason:

1- The atom having the valence shell configuration  $4s^2 3d^8$  would be in:

- i- Group 2A and period 3.      ii- Group 8B and period 4.
- iii- Group 4B and period 4.      iv- Group 3B and period 5.

2- The carbon atom is more electronegative in:

- i-  $\text{CH}_4$       ii-  $\text{C}_2\text{H}_4$       iii-  $\text{C}_2\text{H}_2$

Best Wishes

Prof. Gaber Abu El-Reesh and Prof. Nagwa Nawar

(Atomic numbers =  ${}^1\text{H}$ ,  ${}^2\text{He}$ ,  ${}^6\text{C}$ ,  ${}^7\text{N}$ ,  ${}^{15}\text{P}$ ,  ${}^8\text{O}$ ,  ${}^9\text{F}$ ,  ${}^{10}\text{Ne}$ ,  ${}^{11}\text{Na}$ ,  ${}^{17}\text{Cl}$ ,  ${}^{19}\text{K}$ ,  ${}^{37}\text{Rb}$ )

الاختبار النهائي  
الفصل الدراسي الأول  
دور يناير ٢٠١٢  
كود المادة: ر(١١١)  
الزمن: ساعتان



جامعة المنصورة  
كلية العلوم  
قسم الرياضيات  
المادة: جبر و هندسة  
اليوم - التاريخ: الثلاثاء - ٢٤ / ١ / ٢٠١٢

طلاب المستوى الأول برامج: كيمياء - الكيمياء الحيوية - ميكروبيولوجي - كيمياء و حيوان - كيمياء و نبات -  
علوم بيئة - جيولوجيا - جيوفيزيكا

أجب عن جميع الأسئلة الآتية: الدرجة الكلية : ٨٠ درجة

### السؤال الأول:

(أ) أوجد طول العمود النازل من النقطة (3, 5) على الخط المستقيم الواصل بين النقطتين  
(-1, 0) , (0, -2). (١٠ درجات)

(ب) باستخدام مبدأ الاستنتاج الرياضي أثبت أن

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \dots + \frac{1}{n(n+1)} = \frac{n}{n+1}$$

(١٠ درجات)

### السؤال الثاني:

(أ) أوجد احداثي كل من الرأس و البؤرة و معادلتى الدليل و المحور و طول الوتر البؤري  
العمودي للقطع  $y = x^2 + 4x$ . (١٠ درجات)

(ب) ضع العدد المركب  $z = \frac{1}{(2+i)^2} - \frac{1}{(2-i)^2}$  فى الصورة المثلثية. (١٠ درجات)

### السؤال الثالث:

(أ) حوّل المعادلة  $16x^2 + 9y^2 + 64x - 18y - 71 = 0$  إلى الصورة القياسية للقطع  
الناقص موضحاً جميع المعلومات الخاصة به مع الرسم. (١٠ درجات)

(ب) حلّ الكسر  $\frac{x+2}{x^4-1}$  إلى كسوره الجزئية. (١٠ درجات)

### السؤال الرابع:

(أ) أوجد المقياس و السعة للعدد المركب  $z = 1+i$  ثم أوجد قيمة  $z^{\frac{4}{3}}$ . (١٠ درجات)

(ب) باستخدام قاعدة كرامر أوجد حل المعادلات الآتية  
 $x - y + z - 6 = 0, \quad 2x - y - 2z - 5 = 0, \quad x - 4y + z - 3 = 0$

مع أطيب التمنيات بالنجاح و التفوق،  
أسرة التدريس

Mansoura University  
Faculty of Science  
Physics Department  
Course code: Phys 101  
Course title: Properties of  
matter and Heat



First semester 2011-2012  
Date: 14-1-2012

1<sup>st</sup> Level students  
All programs  
Full Mark: 60  
Allowed time: 2 hours

Answer all the following questions:

Marks

- 1- a- Find the periodic time T of a simple pendulum by dimensional analysis? 6  
Where the periodic time depends on the pendulum length L, the mass of its bob m and g the acceleration of gravity.
- b- Define the following: 4  
i) Shear strain ii) Hooke's law  
iii) Young's modulus iv) Continuity Equation
- c- Steel wire of a length 250 cm, the elongation ( $\Delta L$ ) is 1.2 mm when hung. Calculate 5  
the strain, stress and the elastic potential energy per unit volume stored in the wire.  
(Young's modulus =  $2 \times 10^{11} \text{ N/m}^2$ )
- 
- 2- a- The position of a particle moving along X-axis is given by : 5  
 $X(t) = 6 \sin(30t) \text{ m}$  and t in second. Compute  
a) The  $X_{\max}$ ,  $V_{\max}$ , periodic time and frequency.
- b- Drive an expression for the radial heat flow through the spherical cross section pipe? 5
- c- What mass of steam initially at 125 °C needed to warm 150 g of water in a 90 g glass 5  
container from 25 °C to 55 °C. (Specific heat of steam = 2010 J/kg.K, Specific heat of  
water = 4190 J/kg.K,  $L_v = 2.26 \times 10^6 \text{ J/kg}$ , specific heat of glass = 837 J/kg.K).
- 
- 3- a- Drive an expression for the area expansion coefficient. 6
- b- Define the following: 4  
i) Stefan's Law ii) British thermal unit  
iii) Latent heat of vaporization iv) Mechanical heat equivalent.
- c- If 1 m<sup>2</sup> from the sun surface radiate energy  $1.5 \times 10^3 \text{ cal/cm}^2 \cdot \text{s}$ . Calculate the 5  
sun temperature ? Given  $\sigma = 5.67 \times 10^{-8} \text{ Wm}^{-2} \text{K}^{-4}$  and emissivity = 1
- 
- 4- a- Deduce Bernoulli's equation for the steady flow of incompressible fluid. 8
- b- A large tank is filled with water to a height of 25cm above a hole in the side of the 7  
tank; the cross-sectional area of the tank is  $0.25 \times 10^{-4} \text{ m}^2$ . Determine the flow velocity  
of water and the rate of water flow in one hour.

Best wishes:

Examiners:

د. صفاء عبدالمقصود  
د. هانسي كمال

د. مایسه إسماعیل عبدالحمید  
د. أنور مجاهد عبدالقوی

أ.د/ المتولی محمود عبدالرازق  
د. نجاح الششتاوی

- السؤال الأول ( اجبارى )

تخير الإجابة الصحيحة من بين الأقواس

١. تتمثل الشرعة الدولية لحقوق الإنسان في ( الإعلان العالمي لحقوق الإنسان - العهدان الدوليان لحقوق الإنسان - كل ما سبق ) .
٢. تبدو أهمية دراسة حقوق الإنسان على ( المستوى الوطني - المستوى الدولي - كل ما سبق ) .
٣. صدر الإعلان العالمي لحقوق الإنسان عن الجمعية العامة للأمم المتحدة في عام ( ١٩٤٦ - ١٩٤٧ - ١٩٤٨ ) .
٤. الحق في الحياة ( من حقوق الإنسان المتصلة بالكيان المادي - من حقوق الإنسان المتصلة بالكيان المعنوي ) .
٥. القتل بدافع الرحمة ( قتل عمد - قتل خطأ - مانع من موانع المسؤولية ) .
٦. لكل إنسان حرية التعبير عن الرأي ( بالقول - بالكتابة - بالتصوير - بالإشارة - كل ما سبق ) .
٧. أقرت الجمعية العامة للأمم المتحدة العهد الدولي للحقوق الاقتصادية والاجتماعية والثقافية في عام ( ١٩٦٤ - ١٩٦٦ - ١٩٦٧ ) .
٨. تعد حرية ( الرأي - الدين - التعليم ) الحرية الأم لكل الحريات المعنوية .
٩. تعد ( الوساطة - التحكيم - كل ما سبق ) من طرق العدالة البديلة .
١٠. الاعتداء على الحق في الحياة يترتب ( المسؤولية الجنائية - المسؤولية المدنية - كل ما سبق ) على المعتدى .

- السؤال الثاني ( اجبارى )

حدد العبارات الصحيحة والخاطئة فيما يلي

١. فرق الإسلام في حماية حقوق الإنسان بين المسلم وغير المسلم .
٢. يعد الحق في التقاضي من آليات حماية حقوق الإنسان على المستوى الداخلي .
٣. أجازت الشريعة الإسلامية الدفاع الشرعي عن النفس .
٤. تعد حرية التعليم من الحريات الشخصية .
٥. أبقى القانون المصري على عقوبة الإعدام في حالات معينة .
٦. اتخذت الدولة دينا رسميا لها يحول دون الحرية الدينية .
٧. الإجهاض جريمة يعاقب عليها القانون و الشريعة الإسلامية .
٨. يعد الحق في الحياة من الحقوق و الحريات المعنوية .
٩. يجوز أن تقرر المحكمة جعل جلساتها سرية مراعاة للنظام العام والآداب ، كما يجوز أن ينطق بالحكم في جلسة سرية أيضا لذات الاعتبارات .
١٠. أقرت الجمعية العامة للأمم المتحدة العهد الدولي للحقوق المدنية والسياسية عام ١٩٧٦ .

مع تمنياتنا بالنجاح والتوفيق



English Language Exam (١٠٢٤)

**Section One: Reading Comprehension: (30 Marks) {45 Minutes}**

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

The National Aeronautics and Space Administration (NASA) is the agency of the United States government that is responsible for the nation's civilian space program and for aeronautics and aerospace research. Since February 2006, NASA's mission statement has been to "pioneer the future in space exploration, scientific discovery and aeronautics research." On September 14, 2011, NASA announced that it had selected the design of a new Space Launch System that it said would take the agency's astronauts farther into space than ever before and provide the cornerstone for future human space exploration efforts by the U.S.

NASA was established by the National Aeronautics and Space Act on July 29, 1958, replacing its predecessor, the National Advisory Committee for Aeronautics (NACA). The agency became operational on October 1, 1958. U.S. space exploration efforts have since been led by NASA, including the Apollo moon-landing missions, the Skylab space station, and later the Space Shuttle. Currently, NASA is supporting the International Space Station and is developing the manned Multi-Purpose Crew Vehicle and Commercial Crew vehicles. The agency is also responsible for the Launch Services Program (LSP) which provides oversight of launch operations and countdown management for unmanned NASA launches.

NASA science is focused on better understanding Earth through the Earth Observing System, advancing heliophysics through the efforts of the Science Mission Directorate's Heliophysics Research Program, exploring bodies throughout the Solar System with advanced robotic missions such as New Horizons, and researching astrophysics topics, such as the Big Bang, through the Great Observatories and associated programs. NASA shares data with various national and international organizations such as from the Greenhouse Gases Observing Satellite.

The most important part of NASA's activities are its missions; they can be divided into manned and unmanned. The latter can be either independent, carrying scientific equipment, or supportive, testing equipment for manned flights. In the beginning, NASA's missions focused on the space race with the Soviet Union, which won the first round, but later USA took the initiative and won the final race to the Moon. The unmanned missions have until now explored most of the solar system. They have also brought telescopes for deep space exploration into orbit around the Earth together with satellites for studying Earth itself.

**Answer the following questions:**

- 1- Why is the agency of NASA important for the world?
- 2- What are the flights of NASA?
- 3- What did the unmanned missions achieve so far?

**(B) Decide if the following statements are true (T) or false (F) according to the information in the passage and correct the false one:**

- 1- NASA chose its new shuttle in the middle of 2011. ( )
- 2- NASA was founded before 1958. ( )
- 3- NASA is responsible for human spaceflight only. ( )
- 4- NASA is supporting unmanned extra-vehicular activities only. ( )
- 5- Soviet Union won the final race to the moon. ( )

**(C) Find synonyms in the passage which mean the following:**

1- Air Navigation	4- Ahead	7- Backbone	10- Institution
2- Tell	5- Former	8- Group	11- Many Objects
3- Tool	6- Sun	9- Leading	12- Concentrate

**(D) According to the passage, what do the underlined words refer to?**

**Section Two: Grammar Focus: (20 Marks) {20 Minutes}**

**(A) Identify whether the following underlined words are adverbs or prepositions, and then circle the object of the prepositions.**

- 1- Everyplace I go is filled with warnings.
- 2- The street sign outside my school warns drivers.
- 3- The football player can't play with two balls.
- 4- Every time I go outside, I am greeted by a sign.
- 5- I look up and I can't see well.

**(B) Use a coordinate conjunction or a subordinate one to join the following clauses in an appropriate way, and then identify the dependent and the independent clauses.**

- 1- **a-** The phone rang again and again. **b-** The receptionist was not able to get much work done.
- 2- **a-** The rain clouds can be seen in the distance. **b-** No rain has fallen.
- 3- **a-** I was absent yesterday. **b-** I was sick.
- 4- **a-** I was late. **b-** I managed to catch the train.
- 5- **a-** My brother wants to be a doctor. **b-** He wants to be a pilot when he grows up.

**(C) Underline the clauses in the following sentences, and then identify the type of the clause.**

- 1- When he will arrive is not important.
- 2- We are concerned about who will do the work.
- 3- I like the book which you recommended.
- 4- The story that you told me about Ahmed was funny.
- 5- Although he feels sick, the speaker will take part in the seminar.

**Section Three: Vocabulary Skills: (10 Marks) {10 Minutes}**

**(A) Complete each word, using the correct prefix. You may use the same prefix more than once:**

dis	re	un	in	co
-----	----	----	----	----

- 1- Many sailors -----fuse to sail in the Bermuda Triangle.
- 2- Sometimes the weather is too-----pleasant to go outside.
- 3- No one can-----prove the theories about the Triangle.
- 4- It is very-----safe to travel with poor equipment.
- 5- The professor asked the students to-----read the essay again.

**(B) Choose the correct answer to complete each sentence:**

- 1- Exposure to-----chemicals is bad for your health. (harmful- harmly)
- 2- He is known to be a-----student. (dependable- dependworthy)
- 3- Some people find it difficult to put words into-----order. (alphabeticous- alphabetical)
- 4- Despite his age, he kept his-----appearance. (boyish- boyful)
- 5- Poor-----conditions may have caused plants to disappear. (climatous- climatic)

**Section Four: Writing Skills: (30 Marks) {45 Minutes}**

**(A) Write down a dialogue between a client and a sales person in a department store about buying a product. Not less than ten lines.**

**(B) Using all types of the sentence, write a paragraph from group (1) and another from group (2). Give a title to your paragraphs and write down your brainstorm:**

Group (1)	Group (2)
a) My valuable piano	a) An Active Student and a passive Student
b) A lovely rainy day in winter	b) Life Before and After High School
c) Your dream house	c) Morning and Night
d) Pizza	d) Action Movies between Egyptian and American

**(C) These are parts of paragraphs; write down the type of every one:**

1- My roommate and I share a refrigerator. My roommate's half of our refrigerator is very neat. On the top shelf, there are a carton of milk, a pitcher of orange juice, and a bottle of mineral water. These are arranged in a straight line on the shelf. On the next shelf, there are cans and soda. These are carefully lined up in rows. Orange soda is in the first row, Pepsi in the second, and 7-up in the third.



Christmas was my favorite holiday when I was a child, and Christmas morning was my favorite part of that special day. My brother and I usually woke up before dawn. We always tried to stay in bed until daylight, but it was hard. We usually got up while it was still dark and ran into the living room to see what Santa Clause had brought us. Then we raced into our parents' room and woke them up.

3-The English language has some truly remarkable statistics. Out of the world's 6000 languages, English has the richest vocabulary, with over 500,000 words and an additional half million scientific and technical terms. It is the native language of over 400 million people scattered across every continent.

4- Owning a pet from the pound or Animal Rescue League has many advantages. First of all, a child feels good about rescuing an abandoned or abused animal and giving it a whole new life. Besides, if the animals from the pound aren't adopted right away, they might be put to sleep. Having a pet also means lots of responsibilities. A child has to feed, clean up after, brush, and exercise the pet.

5- There are many differences between the intensive care a patient received yesterday and the intensive care he receives today. For example, thirty years ago a patient's intensive care consisted of putting him in a single room, giving him oxygen and fluids, taking his vital signs frequently, and giving him medication as ordered. The approach to intensive care today is much different. It consists of an entire unit designed especially to care for the critically ill patient. It is equipped with sensitive life-saving machines.

*Best of Luck*

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



جامعة المنصورة  
كلية العلوم  
قسم النبات  
المنصورة - مصر

Final Examination in Botany  
First Term: Jan. 2012

Educational Year: First Level  
Subject: Botany  
Time: 2 hrs Date: 21 / 1 / 2012  
Programs : (Microbiology, Biochemistry, Zoology & Chemistry, Botany & Chemistry, Geology and Environmental sciences).  
Course(s): Systematic Botany  
Full mark: 60 Question mark: 20

Answer the following questions:

Q1 Fill in the Space:

1-Cyanobacteria belong to kingdom ..... , however, *Aspergillus* is related to kingdom..... ( 2.0 )

2- Diatoms belong to phylum ..... , however, *Euglena* is related to phylum ..... ( 2.0 )

3- The reserve food in chlorophyta is ..... , however , reserve food in Phaeophyta is ..... ( 2.0 )

4- The cell wall in bacteria is mainly composed of ..... , however , cell wall of fungi is mainly of ..... ( 2.0 )

5- yeast is classified under class ..... but *Rhizopus* is classified under class ..... ( 2.0 )

6- Nutrition in fungi is ..... , however, nutrition in algae is ..... ( 2.0 )

7- Nucleus in Nostoc is ..... , however, nucleus in Gymnosperms is..... ( 2.0 )

8- Bacteria that live in complete absence of Oxygen is called ..... , however , bacteria require Oxygen to live is called..... ( 2.0 )

9- The protein coat of a virus is known as..... , However , Slime layer covering bacterial cell wall is called ..... ( 2.0 )

10- Kingdom Protista include organisms that are ..... and ..... ( 2.0 )

Examiners:

Prof. Abduldayem Sherief  
Dr. Doaa Darwish

Prof. Mervat Hosny  
Dr. Ghada Sameer



Final Examination in Botany  
First Term: Jan. 2012

**Q2** Choose the correct answer:

- 1- *Volvox* is of ( Filamentous – colonial- Unicellular ) form . ( 2.0 )
- 2- Viruses are ( Obligate autotrophic – Obligate intracellular parasites – Heterotrophic ) . ( 2.0 )
- 3- The cell wall in Diatoms is Mainly of ( Cellulose – Chitin - Pectin + SiO<sub>2</sub> ) . ( 2.0 )
- 4- Gametangial copulation is a mode of (Sexual – Asexual – vegetative reproduction) in some Microorganisms. ( 2.0 )
- 5- Lytic cycle caused by viruses lead to ( complete lysis - Partial lysis – non-lysis ) of bacterial cell wall. ( 2.0 )
- 6- Mosses are related to (Petridophyta - Bryophyta - Dicotyledons). ( 2.0 )
- 7- Bacterial movement occur by ( Flagella – Fimbriae – Pilli ). ( 2.0 )
- 8- Isogamy means fusion of ( 2 equal - 2 un-equal – 2 dissimilar ) gametes . ( 2.0 )
- 9- Sexual reproduction in *Spirogyra* occur by ( Fragmentation – conjugation – Motile gametes ) . ( 2.0 )
- 10- *Chlamydomonas* is classified under ( Ascomycota- Monera – Protista ) ( 2.0 )

**Q3** Write on (with illustration as possible) :

- 1- Life cycle of *Rhizopus* . ( 4.0 )
- 2- Asexual reproduction in *Aspergillus*. ( 4.0 )
- 3- Economic Importance of cyanophyta. ( 4.0 )
- 4- Mode of reproduction in *Anabaena* . ( 4.0 )
- 5- Living and Non-living characters in Viruses. ( 4.0 )