

من: ساعد
الدرجة: تاريخ العلوم (٢٠١٧ ج)
اليوم: الجمعة
التاريخ: ٢٠١٧/٥/٢٥

امتحان لطلاب كلية العلوم
تاريخ العلوم

كلية العلوم
الفصل الدراسي الثاني
٢٠١٧ | ٢٠١٨ م

أجب عن جميع الاسئلة الآتية

(٣٠ درجة)

السؤال الأول: ضع علامة صح او خطأ امام العبارات الآتية:

- (١) يعتبر ابن ملكا من الرواد الاوائل في علم التشريح ()
- (٢) يعتبر اقليدس من مؤسسي علم الجبر في عصره عند اليونانيين ()
- (٣) من أشهر علماء العرب في الطب ابن الخازن ()
- (٤) من أهم إنجازات ابن ملكا ميزان الحكمة ()
- (٥) أبو القاسم الزهراوي هو أول من اخترع الحقنة لاعطاء الادوية تحت الجلد وسماها الزراقفة ()
- (٦) يعتبر المصريون أول من اخترعوا البوصلة عام ٢٧٠م ()
- (٧) يعتبر ابوبكر الرازي أول من لقب بالشيخ الرئيس وابتكر أول جراحة للاعصاب المقطوعة ()
- (٨) طاليس هو أول من قال ان الارض تشبه صدفة محاطة بالمياه وان السماء تغطي هذه الصدفة ()
- (٩) يعتبر ابن سينا طبيب عربي وأول من الف موسوعة التصريف ()
- (١٠) أول من ابتكر مخدر قبل الجراحة وسماه المرقد هو ابن النفيس ()

(١٠ درجة)

السؤال الثاني: اذكر الاسلام على اوروبا وكيف استفادت منها.

أجب عن السؤالين الآتيين في الطب؟

(١٠ درجة)

السؤال الثالث: اذكر كيف استفادت أوروبا من الطب في الطب.

أجب عن السؤالين الآتيين.

مع تمنياتي لكم بالتوفيق

أستاذ دكتور أحمد ماهر عبدالباسط



جامعة أسيوط
كلية العلوم
متطلب جامعة
الفصل الدراسي الثاني
2018-2017

المستوي : الأول
المادة: التفكير العلمي
كود المادة: 14 م ج
الدرجة الكلية: 50 درجة
زمن الامتحان: ساعتان



• اجب عن السؤال الاجباري التالي:

السؤال الأول: اكتب ما تعرفه عن كل مما يأتي: (30 درجة)

- 1- العناصر الأخلاقية التي يُفضل ان تتواجد في شخصية العالم.
- 2- التراكمية واتجاهاتها كصفة من صفات التفكير العلمي. دعم اجابتك بذكر امثلة.
- 3- "القدم والشهرة" كإحدى الدعامات التي تركز عليها السلطة الفكرية.
- 4- الآراء المختلفة التي توضح حقيقة العلاقة بين التكنولوجيا والعلم.

• اجب عن سؤال واحد فقط مما يلي:


السؤال الثاني: قارن بين كل مما يأتي: (20 درجة)

- 1- التفكير الاسطوري والتفكير الخرافي مع ذكر امثلة.
- 2- الحضارة الشرقية والحضارة اليونانية كحضارات قديمة اثرت بصفة أساسية في تاريخ التفكير العلمي.

السؤال الثالث: ناقش العبارات التالية: (20 درجة)

- 1- انكار قدرة العقل تمثل عقبة من عقبات التفكير العلمي.
- 2- يعتبر التنظيم من أهم سمات التفكير العلمي. دعم اجابتك بذكر امثلة.

مع خالص تمنياتي بالنجاح والتوفيق


د. / أحمد فريد

اجب عن جميع الاسئلة الآتية:

السؤال الأول: (٥٠% من الدرجة الكلية)

(أ) قيست أبعاد قطعة أرض مثلثة الشكل فوجد أن مساحتها ١١٧٣٢٥ م^٢ وبمعايرة الشريط المستخدم وجد أن طوله ينقص ٤ سم عن طوله الاسمي (٢٠ م). أحسب مساحة قطعة الأرض الحقيقية.

(ب) اكمل العبارات التالية:

- ١- خريطة ذات مقياس رسم ١:٢٥٠٠٠ هي خريطة
- ٢- خريطة ذات مقياس رسم ١:٥٠٠ هي خريطة
- ٣- الذراع المعماري = قصبة
- ٤- السهم = ذراع بلدي مربع

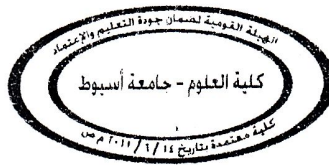
(ج) قيس مسطح قطعة أرض علي الطبيعة و حسب مسطحها فوجد أنه يساوي (٥ س ، ٧ ط ، ٤ ف) ثم قيس مسطح نفس القطعة علي الخريطة فكان المسطح = ٢٨ بوصه مربعه . احسب مقياس رسم الخريطة .
و إذا تم قياس خط (س ص) بشريط طوله ٤٩,٩٤ م فكان طول الطريق ٤٥٣,٧٦ م احسب طول الطريق الصحيح علي الخريطة المذكوره .

السؤال الثاني: (٥٠% من الدرجة الكلية)

- (أ) تحدث باختصار عن اهمية الميزانية مع ذكر ثلاثة تطبيقات على الاقل.
- (ب) أخذت القراءات التالية عند عمل ميزانية علي محور طريق فكانت :-
1.63 ، 1.27 ، 1.47 ، 1.82 ، 0.84 ، 1.35 ، 1.34 ، 0.48 ، 2.18 ، 1.14 ، 2.24 ، 1.31 ، 1.63 ،
2.15 ، 2.20 ، 2.04 ، 1.32 . فإذا كانت القراءات الثالثة و السابعة مؤخرات و القراءه العاشره مقدمه و نقل الميزان عند النقطة التاسعه و كانت النقطة العاشره نقطة دوران ، أوجد مناسيب النقط المختلفه إذا كانت النقطة الثالثه روبير منسوبه (50.00 م) فوق سطح البحر. ثم حقق النتائج حسابيا .

***** انتهت الاسئلة *****

مع أطيب التمنيات بالتوفيق.....



Final Exam (312Z) 10-5-2018 2 hours (50 Marks)

1-Put true or false for the followings

(8Marks)

- | | |
|---|--|
| 1-Primary antibody is labeled in indirect immunocytochemistry. | 2-Mucin can detect by PAS. |
| 3-Sudan black soluble in protein than fat solvent. | 4-RNA is detected by Feulgen reaction. |
| 5-Photographic emulsion is diluted (2:1) Tri distilled water. | 6-Total proteins stained by Sudan black. |
| 7-Monosaccharides can be investigated in sections. | 8-Mucin can be detected by PAS. |
| 9-B-Rays are strong biological energy. | 10-Masson Trichrome stain elastic fibers. |
| 11-(PO ₄) groups cause the basophilia of nucleic acids. | 12-PAS is specific for dialdehyde. |
| 13- Oxidation of polysaccharides by HCL. Give CHO. | 14- Resolution is low with low kinetic energy. |
| 15-Nissle granules were detected by Crystal Violet. | 16- Cholesterol investigated by chemical methods |

2-Match the followings for both each groups:-

(10 Marks)

- | | |
|-----------------------------------|-----------------------------------|
| 1-Control test | (A)- RNA |
| 2- IN HCL at 60C | (B) Remove purine bases. |
| 3- Cholesterol | (C) PAS techniques demonstrated. |
| 4- Autoradiographic techniques | (D) stain inside the living body. |
| 6-Mucin | (E) demonstration of fat. |
| 6- Free CHO | (F) Unsaturated lipids +UV give. |
| 7- Vital stain | (G) Cell dynamics & activity. |
| 8- Ribose sugar main structure of | (H). Used amylase at 37C. |
| 9- Tritiated fatty acids | (I) polarized microscope. |
| 10-Fluorochrome | (j) fluorescein and rhodamine. |

3- Choose the correct answers:-

(12Marks)

- 1-Deoxy ribose sugar detected by (PAS -bromophenole-sudan black).
- 2-Best carmine detect (protein-lipids-glycogen).
- 3-Orthochromatic structure contain (regular-irregular-both) space between its units.
- 4-Photographic emulsion is used at (42-37-room) temperature.
- 5-Silver halide is diluted by (1:1-2:1-5:2).
- 6-Monomers of the dye must contain (-Ve-+Ve -both) groups.

الزمن: ساعتان

٢٨ مايو ٢٠١٨



كلية العلوم

امتحان نهاية الفصل الدراسي لجميع المستويات

المقرر: أخلاقيات المهنة والسلامة المهنية

رقم المقرر ورمزه: F300

أجب عن الأسئلة التالية:

السؤال الأول:

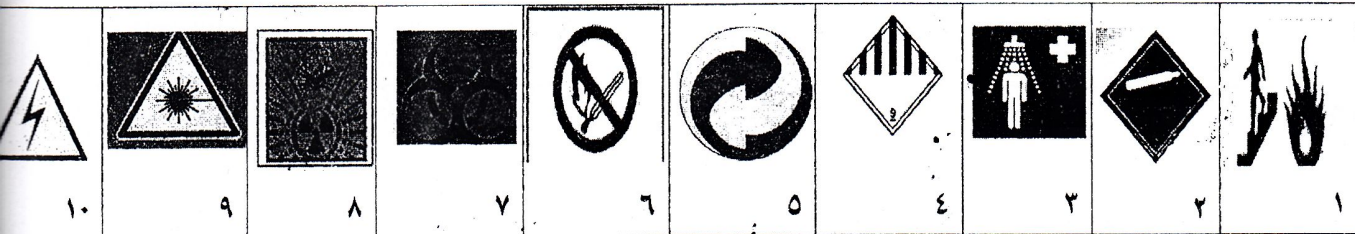
(٥ درجات)

أ. ضع علامة ✓ أو X امام العبارات التالية مع تصحيح الخطأ:

- ١- الالتزام بمعايير الجودة من الأخلاقيات الهامة لأي مهنة ()
- ٢- الأمانة والسلامة والصدق من أخلاقيات البحث العلمي ()
- ٣- تنمية القدرة على التقويم الأخلاقي للأفعال والتصرفات في العمل من أهداف المقرر ()
- ٤- تعرف المهنة بأنها مجموعة من الأعمال المتشابهة تنتمي لوحدة نوعية . ()
- ٥- يجب وضع إناء مملوء بالرمل تحت أوعية حفظ المواد الكيميائية لامتصاص المياة المنسكبة ()
- ٦- من شروط السلامة في المنشآت الصناعية وضع العلامات الارشادية بالعربية والانجليزية. ()
- ٧- لإطفاء حرائق الزيوت والسوائل يجب استخدام طفايات حريق من نوع الماء ()
- ٨- أخلاقيات المهنة مسألة دينية فقط تخص علاقة العيد بربه ()
- ٩- يعتبر سرقة علمية اذا اخذت افكارا في محاضرة حضرته لبحثك وأشرت الى صاحب الافكار ()
- ١٠- المواليد المستنسخة تعيش عادة لفترة أطول . ()

(٥ درجات)

ب. اكتب مدلول علامات التحذير والسلامة التالية:



(٥ درجات)

السؤال الثاني: أ. اكتب خمس مواصفات للتقرير المهني الجيد:

١-	٢-
٣-	٤-
٥-	

(٥ درجات)

ب. اكتب عن موقف اخلاقي مهني موضحا به ثلاث خصال اخلاقية وخصلتين لا اخلاقيتين:

.....

.....

.....

.....

.....



السؤال الثالث

(٤ درجات)

١- من مخرجات المقرر المهاريية الذهنية:

ب -

د -

١ -

ج -

(٦ درجات)

٢- اكتب ستة من نفايات المعامل الخطرة:

١ -	٢ -
٣ -	٤ -
٥ -	٦ -

السؤال الرابع:

(٤ درجات)

١- عدد اربعة من المنافع المترتبة على الالتزام الأخلاقي

-	-
-	-

٢- اكتب اثنين من الاسعافات الاولى لكل حالة من الحالات الآتية: (٦ درجات)

النزيف	ضربة الشمس	لدغ الحشرات

(١٠ درجات)

السؤال الخامس: عرف بايجاز خمسة فقط من المصطلحات الآتية:

Plagiarism:
Lab Safety:
Scientific Ethics:
MSDS:
Safety Symbols:
Code of Ethics:
LD50:

أ.د. ناصر الشيمي

مع تمنياتي بالتفوق

انتهت الأسئلة



Geology Department
Faculty of Science
Assiut University

**Final exam, second level (Geology, Geophysics, Geology/Chemistry students)
Stratigraphy (G210), May 2018**

Total score: 50 marks

Time allowed: 2 hours

Answer FIVE only of the following:

Question No. 1: Write briefly on TWO only of the following: (10 marks; 5 marks each)

- A- Establishment of taxon-range zone.
- B- Significance of fossils in biostratigraphy.
- C- Law of superposition and its structural evidences.

Question No. 2: Write on TWO only of the following (10 marks; 5 marks each)

- A- General attributes of lithostratigraphic units.
- B- Chronostratigraphic classification.
- C- Contacts between lithostratigraphic units.

Question No. 3: Affirm if the following statements are correct or wrong, and correct the wrong: (10 marks; 1 mark each)

- A- Major cycles of marine transgression and regression with pronounced unconformities separate the systems into twofold or threefold.
- B- In paraconformities apparent conformity might be observed across unconformity surfaces.
- C- If a lithostratigraphic unit is divided into two or more formal units, the geographic name of the original unit should not be employed for any of the subdivisions.
- D- Lithodemic unit does not in general conform to the law of superposition.
- E- The fundamental taxonomic unit used in any refined biostratigraphy is the species.
- F- The basic principle of biostratigraphy is that evolutionary changes in faunas and floras are reversible.
- G- Surface stratigraphy can give a complete picture of the subsurface.
- H- Mud cracks are considered evidence for strata continuity.
- I- Relating sequences or ages measured in one place to events in other places requires correlation.
- J- Mass extinctions can reflect local events and are qualitatively and quantitatively different than normal extinctions.

Question No. 4: Define FIVE only of the following: (10 marks; 2 marks each)

- A- Eustatic sea level, B- Carbon Isotope Excursion (CIE), C- Concurrent range zone, D- Allostratigraphic unit, E- Uniformitarianism, F- Geochronology, G- Cross-cutting relationships.

Question No. 5: Compare between the following: (10 marks; 5 marks each)

- A- Biostratigraphic and lithostratigraphic units.
- B- Thermoremanent magnetism and depositional remanence magnetism.

Question No. 6: Write briefly on TWO only of the following: (10 marks; 5 marks each)

- A- Naming of magnetostratigraphic polarity units.
- B- Chronostratigraphic versus biostratigraphic correlation.
- C- Principles of original horizontality and inclusions.

**Examiners: Prof. Magdy S. Mahmoud, Dr. Amr S. Deaf
Good Luck**

انتهت الأسئلة



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**Examiners: Prof. Magdy S. Mahmoud, Dr. Amr S. Deaf
Good Luck**

انتهت الأسئلة



Section I (Inorganic Chemistry)

(25 Marks)

Answer the following questions

1. -a) Explain the reasons for **Five only** from the following:
 - i The Unexpected high boiling point of H_2O .
 - ii NO_2 is an acidic Oxide
 - iii SF_6 is known but OF_6 is not
 - iv. Fluorine is so strong an oxidizing agent.
 - v. Cesium ions conduct electricity more than lithium ions..
 - vi. NH_3 is a poisonous gas .
- b) How you can prepare **three only** from the following:
super phosphate, water gas, NH_3 , HI .
- c) In each pair of acids, state which is stronger and why?
 HF and HBr , $HClO_2$ and $HClO$, H_2SO_4 and H_2SO_3 .
- 2-a) Choose the correct answer and comment:
 - i) In which species does **nitrogen** exhibit its highest oxidation state (NH_3 , NO_2^- , N_2) .
 - ii) Which one of the following species contains an **even** number of electrons: (NO_2 , NH_4^+ , NO)
 - iii) The species which contains **diamagnetic** properties is (NO , O_2 , N_2)
- b) Element X dissolves in water to give a colorless and odorless gas.
It reacts with Cl_2 to give a white solid XCl .
 - i. Which could be the identity of X? (Argon, sodium, Iodine)
 - ii. Write the equations of the reactions.
- c) What the types of hardness of water? How we can remove this problem?

See the Next Page

Section II (Physical Chemistry)**(Mark: 25)****Answer the following questions:****I) Choose the correct answer:****(Mark:5)****1) The ratio of P1 and P2 correspond to variable T as:**

$$\frac{P_1}{P_2} = \dots\dots \quad \text{a) } \frac{H_1}{H_2} \quad \text{b) } \frac{V_1}{V_2} \quad \text{c) } \frac{T_2}{T_1} \quad \text{d) } \frac{T_1}{T_2}$$

2) If the V is keeping constant, then

$$\Delta H = \dots\dots \quad \text{a) } \Delta F^\# \quad \text{b) } q_v \quad \text{c) } \Delta H^\# \quad \text{d) } q_p$$

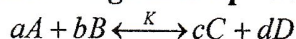
3) For reversible processing: $q_{irrev} = \dots\dots$ a) $\Delta F^\#$, b) $\Delta G^\#$ c) q_{rev} **4) $\Delta H = \Delta E + \dots\dots$ a) $\Delta F^\#$, b) ΔR , c) $\Delta(PV)$, d) ΔC_p** **5) If $\Delta H^\#$ and Q_p are negative, the reaction will be:****a) irreversible b) endothermic c) reversible d) exothermic****II) Complete the Following:****(Mark:5)****1) Under isothermal expansion of ideal gas: $\Delta S^\# = \dots\dots$**

$$2) \frac{dH}{dT} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$$

$$3) \Delta G^\# - \Delta G^{\#0} = \dots\dots$$

$$4) C_p = \dots\dots + \dots\dots$$

$$5) \frac{d \ln K}{dT} = \frac{\dots\dots}{\dots\dots}$$

III -a) Show, how can you calculate the work done (W) in each operation,**maximum work (W_{\max}), and efficiency (η) during Carnot cycle (Mark:4)****b) Tabulate the conditions for $\eta\% = -100, -50, 0.00, +50, +100$, and ∞** **IV-a) Prove that the equilibrium constant (K) for the chemical reaction is affected by the change in temperature (T):****b) When gaseous of Ozone (O_3) is formed from the molecular oxygen by the****reaction: $\frac{3}{2} O_{2(g)} \leftrightarrow O_{3(g)}$ if $\Delta G^{\#0} = +39.1 \text{ kcal mol}^{-1}$** **What is the value of K for this reaction at: $T = 300, 350$, and 400 K (Mark:6)****V) The K for the reaction: $2NO_{2(g)} \xrightleftharpoons{K} N_2O_{4(g)}$ is:**

$$K_1 = 9.5, \text{ at } T = 320 \text{ K}, \Delta H^{\#0} = -13.75 \text{ kcal/mol}, R = 1.98 \text{ cal/mol-deg}$$

Calculate: (i) K_2 , at $T = 273 \text{ K}$, (ii) $\Delta G^{\#0}$, at $T = 320 \text{ K}$ (Mark: 5)**Good Luck****Examiners: Prof. Dr. Amna S A Zidan,****Prof. Dr. Seddique M Ahmed**

Second Semester Final Examination
Subject: General Chemistry I (C-100)
Students: First Level "Credit Hours System"

Section (A) (25 Marks)

Answer the Following Questions:

First Question: Answer two only from the following: (12.5 Marks)

- a) State Boyle's law and drive it from kinetic gas equation.
- b) i. What is meant by (three only):
Critical temperature - Boiling point - Amorphous solid - Electrophoresis.
ii. Explain briefly reduction method for preparing a colloidal solution.
- c) Give reason for three only from the following:
i. Zinc will displace hydrogen from dilute acid solution.
ii. Viscosity is low at high temperature.
iii. The vapor pressure of water is lower than that of ethyl alcohol.
iv. The crystalline solid are anisotropic.

Second Question: Answer two only from the following: (12.5 Marks)

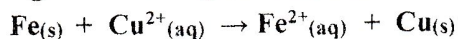
- a) i. Calculate the emf at 25 °C for the following cell:



where $E^0_{\text{Zn}/\text{Zn}^{2+}} = -0.76 \text{ V}$ and $E^0_{\text{Pb}/\text{Pb}^{2+}} = -0.13 \text{ V}$

- ii. 30 liters of a gas has a pressure of 2 atm. and a temperature 27 °C. What will be the volume if the pressure is changed to 5 atm. and temperature to 127 °C?

- b) Assuming the following cell reaction:



where $E^0_{\text{Cu}/\text{Cu}^{2+}} = +0.34 \text{ V}$ and $E^0_{\text{Fe}/\text{Fe}^{2+}} = -0.44 \text{ V}$

Write the: i. Anodic and cathodic reactions.

ii. Cell diagram.

iii. Predict whether the reaction is feasible or not.

- c) Calculate the pressure exerted by 32.0 gm. of methane (molar mass =16) in 500 ml container at 27 °C using Van der Waal's and ideal gas equations.

$$(a = 2.253 \text{ L}^2 \text{ atm.mol}^{-2}, \quad b = 0.0428 \text{ L mol}^{-1}, \quad R = 0.0821 \text{ L. atm. mol}^{-1} \text{ K}^{-1})$$

Good Luck
Prof. Dr. Zahra Abdel Aziz

Please turn over for section B →

Section (B) (25 Marks)

Answer the Following Questions:

First Question: (11 Marks)

a) Choose the correct answer: (8 Marks)

1. How many orbitals have the quantum numbers: $n = 4$, $l = 3$, $m_l = 0$

- a) 7 b) 3 c) 1 d) 0

2. Octet rule is not followed in the formation of:

- a) CH_4 b) NF_3 c) BCl_3 d) H_2O

3. The emission of electrons from the surface of a metal when struck by light is the:

- a) photoelectric effect b) electromagnetic radiation c) spectrum.

4. In which of the following theories the hybridization is considered

- a) VSEPR b) Lewis c) molecular orbital d) valence bond

5. The geometry of NH_3 on the basis of VSEPR model is:

- a) trigonal planar b) trigonal pyramidal c) tetrahedral d) linear

6. The idea that it is impossible to know both the exact position and momentum of an object at the same time is the uncertainty principle proposed by:

- a) Schrodinger b) Louise de Broglie c) Heisenberg

7. Which one of the following is an allowable set of quantum numbers for an electron?

- a) $n = 1$, $l = 1$, $m_l = 1$, $m_s = +1/2$ b) $n = 3$, $l = 2$, $m_l = -1$, $m_s = 0$
c) $n = 2$, $l = 1$, $m_l = -1$, $m_s = -1/2$

8. What is the hybridization of a C atom in CH_4 ?

- a) sp b) sp^2 c) sp^3 d) sp^3d

b) Find the deBroglie wavelength of an electron with a speed of $1.0 \times 10^6 \text{ m/s}$.
(electron mass = $9.11 \times 10^{-31} \text{ kg}$; $h = 6.626 \times 10^{-34} \text{ kg.m}^2/\text{s}$).

(3 Marks)

Second Question: (14 Marks)

a) Draw Lewis dot (electron) structure for (PCl_5 , H_2O) and determine :

- i. molecular geometry ii. bond angle
iii. hybridization. (Use partial orbital diagrams to describe how the mixing of atomic orbitals on the central atoms leads to hybrid orbitals).

(6 Marks)

b) Answer two only from the following: (8 Marks)

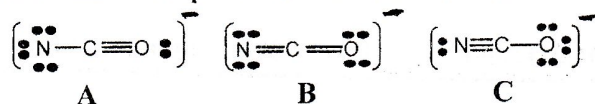
1. Indicate whether the statement is true or false:

- i. Each F-B-F angle in BF_3 is 120° .
ii. For Balmer series $n_1 = 3$, $n_2 = 4, 5, 6, \dots$
iii. The VSEPR model is used to determine the Lewis structures.
iv. The concept of formal charges is useful in determining the most acceptable Lewis structures.

2. Given B_2 and O_2 , using molecular orbital and valence bond theory:

- i. Write molecular orbital configurations.
ii. Determine bond order and indicate stability.

3. NCO^- has three possible resonance forms:



i. Determine the formal charges in each structure.

ii. Based on the formal charges, which Lewis structure is the dominant one? Explain.

(Atomic no. H=1, He=2, Be=4, B=5, C=6, N=7, O=8, F=9, P=15, S=16, Cl=17)

Good Luck

Dr. M.I. Abdel Hamid



Final Examination of General Chemistry (2) (C-105) for 1st level students

Section (A): Organic Chemistry

(25Marks)

Answer the following questions:

Q 1: Mark (✓) for the right statement and (X) for the wrong one of the following: (10 Points)

- 1) Polymerization of ethylene in presence of peroxides is a free radical addition reaction. ()
- 2) Electrophiles are electron rich reagents. ()
- 3) Addition of HBr to an unsymmetric alkenes proceeds in such a way as to involve the most stable carbocation. ()
- 4) The hydrogen adjacent to a triple bond is less acidic than that adjacent to a double bond. ()
- 5) In each termination step, a radical is consumed, but another new radical is formed. ()
- 6) Most of electrophilic addition reactions of alkenes are regiospecific. ()
- 7) The carbonate ion has two identical carbon-oxygen bonds. ()
- 8) Structural isomers are identical compounds. ()
- 9) A curved arrow with a half head is used to indicate the movement of a single electron. ()
- 10) Melting points depend on the intermolecular forces between the individual molecules. ()

Q2: Complete three only of the following equations:

(9 marks)

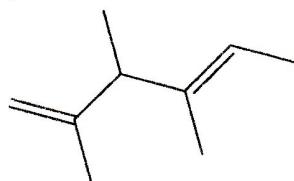
- a) $(\text{H}_3\text{C})_2\text{C}=\underset{\text{H}}{\text{C}}-\text{CH}_3 + \text{O}_3 \xrightarrow{\text{H}^+/\text{Zn}} \dots\dots\dots$
- b) $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3 + \text{H}_2 \xrightarrow{\text{Lindlar catalyst}} \dots\dots\dots$
- c) $\text{H}_3\text{C}-\underset{\text{H}}{\text{C}}=\text{CH}_2 + \text{BH}_3 \xrightarrow{\quad\quad\quad} \dots\dots\dots \xrightarrow{\text{H}_2\text{O}_2/\text{OH}^-} \dots\dots\dots$
- d) $\text{H}_3\text{C}-\underset{\text{H}}{\text{C}}=\text{CH}_2 + \text{H}_2\ddot{\text{O}}/\text{H}^+ \xrightarrow{\quad\quad\quad} \dots\dots\dots$

Q3:

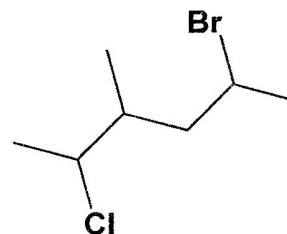
(6 Marks)

a) Give the IUPAC names of the following:

(i)



(ii)



b) Sketch a reaction energy diagram for a one-step reaction that is very slow and slightly exothermic.



Section B (Analytical Chemistry)

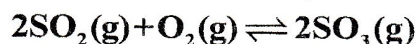
Answer only Five of the following:

(25 Marks)

1. Use the Le-Chatelier's principle to predict how each of the following changes would affect this equilibrium.



- (i) adding $\text{O}_2(\text{g})$ to the system (ii) adding $\text{SO}_3(\text{g})$ to the system
(iii) lowering the temperature (iv) decreasing the pressure
2. Calculate the pH of a 0.20 M CH_3COOH solution, then calculate the pH of a solution containing 0.20 M CH_3COOH and 0.30 M CH_3COONa (K_a of $\text{CH}_3\text{COOH} = 1.8 \times 10^{-5}$).
3. Calculate the solubility (in g/L) of Ag_2SO_4 in 1.0 M $\text{Na}_2\text{SO}_4(\text{aq})$. ($K_{sp} = 1.4 \times 10^{-5}$; At. Wt.: Ag = 107.86, S = 32 and O = 16)
4. At 1000 K, 0.250 mol SO_2 and 0.200 mol O_2 react in a 10.0 L vessel to form 0.162 mol SO_3 at equilibrium. Find the value of K_c , at 1000 K, for the following reaction.



5. What is the molarity of NH_4Cl solution that has a pH = 5.2? (K_b of $\text{NH}_3 = 1.8 \times 10^{-5}$ and $K_w = 1.0 \times 10^{-14}$)
6. Calculate the molar solubility of $\text{Mg}(\text{OH})_2$ in 1.0 M NH_3 solution (K_{sp} of $\text{Mg}(\text{OH})_2 = 1.8 \times 10^{-11}$ and K_b of $\text{NH}_3 = 1.8 \times 10^{-5}$)

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With Our Best Wishes

Examiners:

Prof. Dr. Hassan El-Sherief.

Prof. Dr. Ali Abdelhafez

Prof. Dr. Ragaa Abolwafa

Dr. Ahmed Mohamed Kamal

Dr. Mohamed Abdel megeed

Dr. Doaa Abd El-Rahman

Dr. Ahmed A. K. Mohammed

Assiut University

Faculty of Science

Chemistry Department



May 2018

Time: 2 hr.

Final Examination For 1st year "Applied Industrial Chemistry Students"
(General Chemistry II, 105C).

Section A (Organic Chemistry)

1- Answer using (✓) or (×) on only six of the following: (9 Marks)

- a) Cyclohexane is more stable than cyclopentane.
- b) Polar compounds are formed between atoms of the same electro negativities.
- c) A sp^3 orbital is spherical in shape.
- d) C_nH_{2n} is the molecular formula of cycloalkanes.
- e) Cyclopentane has lower ring strain than cyclopropane.
- f) In ionic bond the atom gain or lose by the valence electrons.
- g) C_3H_6 is a member of alkynes series.

2- Answer the following questions: (16 Marks)

- a) Ozoolysis of an alkene produces tow moles of acetaldehyde. Deduce the alkene structure (3Marks).
- b) Using correct arrow formalism, write the contributors to the resonance hybride structure of actate ion (3 marks)
- c) Explain the free radical chain mechanism of the chlorination of methane (4 Marks).
- d) In which compound is carbon more oxidized propane or acetone? (3 Marks).
- e) What is the IUPAC name of the expected major product formed upon reaction of HCl with 3-methyl -1- butene. (3 Marks).

(Section B) انظر خلف الورقة من فضلك

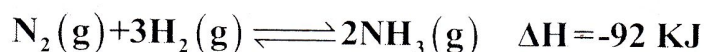
Examiner: Prof. Ali Ahmed Abdel-Hafez

Section B (Analytical Chemistry)

Answer only Five of the following:

(25 Marks)

1. For the following gaseous reaction:

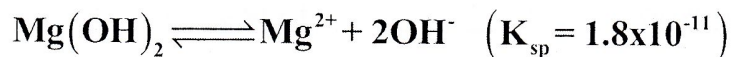


What is the effect of i) Addition of more nitrogen, ii) Lowering the temperature and iii) Reducing the volume of the mixture to one-half of its original value.

2. Calculate the pH of a solution that is both 1M CH_3COOH and 1M CH_3COONa ? ($K_a = 1.8 \times 10^{-5}$). What will be the pH after addition of HCl which reacts with 2% of sodium acetate?
3. Calculate the solubility (in g/100ml) of Ag_2SO_4 in 1M aqueous Na_2SO_4 solution. ($K_{sp} = 1.4 \times 10^{-5}$) At 18°C . (Atomic weights: Ag = 107.9, S = 32 and O = 16).
4. For the system: $\text{A}(\text{g}) + 2\text{B}(\text{g}) \rightleftharpoons \text{C}(\text{g})$

The equilibrium concentrations are $[\text{A}] = 0.06 \text{ mol/l}$, $[\text{B}] = 0.12 \text{ mol/l}$ and $[\text{C}] = 0.216 \text{ mol/l}$. Calculate the values of both K_c and K_p at 250°C . ($R = 0.082 \text{ L.atm.mol}^{-1}.\text{K}^{-1}$)

5. What is the solubility of $\text{Mg}(\text{OH})_2$ in a buffer solution having pH=9?



6. A solution of 0.45 g of urea in 22.5 g of water gave a boiling point elevation of 0.17°C . Calculate the molal elevation constant of water. (M. Wt. of urea = 60 g/mol)