Mansoura University
Faculty of Science
Geology Department
Date: 14/05/2016

كلية العلوم
جامعة المنصورة

Second Term Exam. (May. 2016)
First Level (Petroleum and Mining)
Course No. G114
Course: Rock Forming Minerals
Time: 2 hours Full Mark: 60

Answer the Following Questions

Question One : Tick (√) or (X) and correct

1- The single most abundant silicate mineral in the Earth's crust is quartz.
2- The building block of rock is a mineral.
3- Calcite mineral may be of organic or inorganic origin.
4- Fe2SiO4 and Mg2SiO4 are the two end members of olivines .
5- The acid radical of gypsum is carbonate,
6- The total negative charge on the building block of sorosilicates is – 4.
7- Tourmaline belongs to the cyclosilicate minerals.
8- In the tectosilicate structures the Si:O = 1:4.
9- In the nesosilicate structure, there is a high degree of Al substitution for silica.
10- In the nesosilicate structure ,Ca and Mg minerals make a solid solution at low temperatures.
11- The Al nesosilicate kyanite and sillimanite are typical metamorphic minerals.
12- Beryl is a cyclosilicate mineral with hexagonal crystal form.
13- Ca- bearing pyroxenes crystallize in the orthorhombic system.
14- The hydrous sulphate mineral is anhydrite.
15- The mineral halite is composed of equal amounts of sodium and aluminum.

(15 mark)

Question Two: Complete.

1- ..... and.....are the two most common elements in the silicate minerals.
2- .....and..... ..are the most common minerals in the Earth'crust.
3-.....and.....are two minerals belong to the inosilicate structure.
4-.....and..... .....belong to the tectosilicate minerals.
5- The..... and..... .....are the two main layers in the mica structure .
6-.....and.....are diamorph of sorosilicate group.
7- ..... and..... . are the chemical formulae of single and double chain minerals.
8-..... and.....are the two end members of OPX.
9-.....and..... are the numbers of oxygen atom shared in the double chain silicates.
10-.. .....an..... .....are diamorph in the silica minerals.
11- .....,.....and.....are the common mineral association in granite.
12- When opal loses its hygroscopic water , it converts to.....
13- .....and.....the two end members of plagioclases solid solution.
14- The plagioclase minerals are differentiated using.....and.....
15- All halides are typically.....

(15 mark)

اقلب الصفحة
»

Prof. O. Hegab and Prof. A. Gheith

لجنة التصحيح:

Question Three: Choose the correct answer :

1- In the rock cycle the sedimentary rock are formed by
a- weathering b- transportation c-lithification
2- The thickness of the oceanic crust equals
a- 10 Km b- 40 Km c- 70 Km
3- The most abundant elements by mass in the Earth's crust are oxygen and
a- iron b-silicon c-aluminum
4- The phyllosilicate structure is made of
a- sheets b-chains c- isolated islands
5- Which of the following minerals is not sulphate
a- gypsum b- sylvite c- anhydrite
6- The S:O ratio in the single chain silicate structure is
a- 1:3 b- 4:11 c- 1:2
7-The titanium bearing nesoslicte mineral is
a- sphene b-andalusite c- staurolite
8- In the chemical formulae of inosilicate minerals X represent
a- the larger ions b- the smaller ins c- the medium ions
9- The Ca bearing mineral in the pyroxene group is
a-diopside b- enstatite c-ferrosilite
10- Al substitutes Si in the tetrahedron structure of
a- augite b-olivine c- cristobalite
11- Cleavage is most conspicuous in
a-cristobalite b-muscovite c- garnet
12-At low temperatures pigeonite is exsolved from
a- tridymite b- augite c- zoisite
13- The high temperature K feldspare is
a-albite b- anorthite c-sanidine
14- Which of the following pairs is not polymorph
a-calcite-dolomite b- zoisite-clinozoisite c-coesite-cristobalite
15- The binding element in the muscovite sheets structure is
a-aluminum b-potassium c-magnesium

(15 mark)

Question Four:

Write in TWO of the following:

1- The building blocks and classification of silicate structures.
2- Exsolution is a common phenomena in crystallization of minerals from magma, explain and give examples.
3- Polymorphism is characteristic to some species of minerals, discuss and give examples.

(15 mark)

Good Luck

Prof. Omar Hegab

Mansoura University
Faculty of Science
Geology Department
Date: 17/5/2016

Second Term Exam (May 2016)
The First Level (Petroleum & Mining Geology)
Subject: ع (112)
Course: قوانين المناجم والمحاجر (م ثقافى)
Time: 2 hours Full Mark: 70

أجب عن الأسئلة الآتية:

السؤال الاول :أكمل الإجابة في الأسئلة الأتيـة: (30 درجـة)

a. أهم دور للدولة في تشريع النموذج التعديني هو:
.1
.2
.3
.4
.5
b. أهم مراحل الإعداد للرحلة الحقلية هو:
.1
.2
.3
.4
.5
c. أهم إستخدامات ال GPS هي :
.1
.2
.3
.4
.5
d. أنواع الرخص التعدينية هي:
.1
.2
.3
.4
e. أهم خطوات الذهاب (السفر) الي منطقة الدراسة هي :
.1
.2
.3
.4
.5
.6
f. تصنف المواد التعدينية الي 5 مجموعات هي :
.1
.2
.3
.4
.5

السؤال الثاني :تكلم بإختصار عن كل من: **(16 درجة)**

أ- ماهي الظروف التي تجعل الدولة تلغي رخصة المستثمر التعدينية؟ أ-

ب- ماهي انواع العينات التي تؤخذ لتقييم الخام في المحجر او المنجم وما هي افضلهم؟

ج- ماهي شروط المحافظة علي المنجم او المحجر من التهدير؟

د- ماهي الضرائب التي يسددها المستثمر صلحب الرخصة الي الخزينة العامة للدولة؟

السؤال الثالث: أذكر ما تعرفه عن كل من: **(16 درجة)**

أ- أهم الطرق الجيوفيزيقية في الإستكشاف التعديني

ب- المراحل التعدينية المختلفة بالترتيب

ج- أهم الشروط لكي يكون المنجم او المحجر إقتصادي؟

د- المشاكل المختلفة التي قد تنشأ في المنجم او المحجر؟

السؤال الرابع: **(8 درجة)**

ما المقصود بإعادة تأهيل المحاجر والمناجم؟

لجنة الإمتحان والتصحيح*: أ.د. صلاح نصر عياد د. أحمد مصطفى السيد عبدالجواد*

Mansoura University Faculty of Science Department of Physics Phys. 112	Final Exam 2015-2016	Time Allowed: 2 h Date: 21/ 5 / 2016 Level one: برنامج جيولوجيا البترول والتعدين Total Degree: 60

Answer the following Questions:

Q.1) Choose the correct answer: (20 Marks)

1. Calculate the electric field at a distance of 3.0cm on a positive test charge due to a charge of 2.0×10^{-6} C. Take $(1/4\pi\varepsilon_0 = 9.0 \times 10^9\ N.m^2/C^2)$.

(A) $2.0 \times 10^7\ N\ C^{-1}$, (B) $6.0 \times 10^7\ N\ C^{-1}$, (C) $5.4 \times 10\ N\ C^{-1}$. (D) $4.05 \times 10^{11}\ N\ C^{-1}$

2. The capacitance of a capacitor may be increased by

(A) decreasing the amount of charge stored (B) increasing the surface area of the plate
(C) increasing the voltage across the plate (D) decreasing dielectric constant

3. A wire (length = 2.0 m, diameter = 1.0 mm) has a resistance of 0.45Ω. What is the resistivity of the material used to make the wire?

(A). $5.6 \times 10^{-7}\ \Omega \cdot m$ (B). $1.2 \times 10^{-7}\ \Omega \cdot m$ (C) . $1.77 \times 10^{-7}\ \Omega \cdot m$

4. A 9.0V battery is connected between two parallel metal plates 4.0 mm apart. What is the magnitude of the electric field between the plates?

(A) 2.3×10^3 N/C (B) 9.0 N/C (C) 2.3 N/C (D) 0.75×10^{-6} N/C

5. A uniform electric field, with a magnitude of 600 N/C, is directed parallel to the positive x-axis. If the potential at x = 3.0 m is 1000 V, what is the change in potential energy of a proton as it moves from x = 3.0 m to x = 1.0 m? $(q_p = 1.6 \times 10^{-19}\ C)$.

(A) 8.0×10^{-17} J (B) 1.9×10^{-16} J (C) 0.80×10^{-21} J (D) 2.2×10^{-15} J

6. If a body P, with a positive charge, is placed in contact with another uncharged body A. What is the charge on A?

(A). must be equal in magnitude to that on P (B). must be negative
(C). must be positive (D). must be greater in magnitude than that on P

7. Can electric field lines intersect in free space?

(A) Yes, but only at the midpoint between two equal like charges. (B) Yes, but only at the midpoint between a positive and a negative charge. (C) Yes, but only at the centroid of an equilateral triangle with like charges at each corner. (D) No.

8. What is the electric field (E) value when a force equals to 300 N affected on 6 μC charge?

(A) $5x10^7$ N/C (B) $5.5x10^8$ N/C (C) $7x10^7$ N/C (D) $8.5x10^9$ N/C

9. Two parallel plates having a potential difference of 30 V between them are spaced 0.04 mm. The electric field strength is .

(A) 7500 V/m (B) 34000 V/m (C) 750000 V/m (D) 6000 V

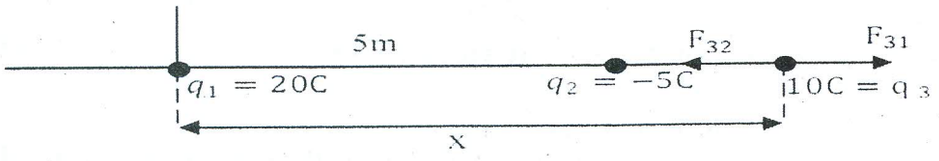
10. Which of the following about a magnetic field is correct?

(A) The unlike magnetic poles repel. (B) A magnetic pole can be isolated.
(C) Tanget of magnetic field lines indicate the direction of the magnetic field.
(D) A magnetic pole cannot induce magnetic poles in other materials.

Q.2). Answer the following questions (10 Marks)

Q 2a.) Describe a general relationship between the net electric flux through a closed surface (often called a gaussian surface) and the charge enclosed by the surface.

Q 2b) Two charges $q_1 = 20$ C and $q_2 = -5.0$ C are placed at point (0.0 m, 0.0 m) and (5.0 m, 0) respectively. Where a 10 C charge should be placed on the x-axis so that the net force on it is zero?



Q.3) Three capacitors (4 μF, 8 μF and 16 μF) are connected in parallel across a 200 V power supply. Determine (A) the equivalent capacitance . (B) the charge on each capacitor. (10 Marks)

Q.3a) Write True or False for each statement. (20 Mark)

1. A positive charge placed in an electric field experiences a force in the direction of the field.

2. The equivalent capacitance of two capacitors connected in parallel is always greater than the larger of the two capacitance values.

3. The electric lines of force begin on positive charge and terminate on the negative charge.

4. Capacitors connected in series carry the same charge Q.

5. The normal to the field line at any point give the direction of the magnetic field at that point

6. The electric field inside a conductor is zero in the static situation.

7. When a Several electrons are placed on a hollow conducting sphere, they clump together on the sphere's inner surface.

8. In ohmic materials, the current density J is inversely proportional to the electric field E

9. The magnetic force has a maximum values when the directionof the magnetic field is parallel to the velocity direction (v) of the charge q.

10- the electric power is given by I^3R.

Examiners: Prof. Dr. Moustafa Tawfek.

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Tuesday, 24 May **2016**
Final semester –Academic Year 2015/2016
Full Mark: 70
Time allowed: **2** Hours- (*09.00-11.00 reading time*)

B. Sc. Exam in UNI 111–Data Base Applications in Geology for Petroleum Geology and Mining Program

(Credit Hours: 2.0)-"University Req."

Instruction: Answer All the following questions: Q1 (A and B), Q2, Q3 and Q4.
In your answers, use labeled diagrams and provide specific, named examples wherever possible.

UNI 111- Software (Relating to material taught by Dr. Adel Kamel)

Q1-A) TRUE/FALSE (6 MARKS)

Instructions: Read the statement completely and tick **true** or **false**. Each True/False question worthies **2 marks**. The True/False section worthies total of **6 marks**.

1) The data plotted on surfer program should be in the form of x and y (_____)

2) Three dimension view can be plotted by grapher program (_____)

3) Freehand program can be used for plotting maps and cross sections (_____)

Q1-B) SHORT ANSWER (11 MARKS)

Instructions: Read the statement below completely and thoroughly then write a short **BEST** answer of the question. The short answer section worthies a **total of 11 marks**.

1) What is the difference between forward and inverse modelling (draw sketch)? (6 Marks)

2) Mention three types of graphics programs? (5 marks)

Q2) FILL IN THE BLANK (18 MARKS)

Instructions: Read the statements below; then fill in the blank. Each answer worthies **2 marks**.

1) Structure contour map represents.....**(1)**.....while isopach contour maps illustrate.....**(2)**.....

2) Topographic contour maps displays.....**(3)**.....

3) All these maps can be plotted by .....**(4)**..... program.

4) There are different grids used for surfer programs such as.....**(5)**....., ... **(6)**....., ... **(7)**.....

5) The data needed for grapher program should be in the form of ..... **(8)**..... and .....**(9)**.....

UNI 111- Surfer and (IP) Software (Relating to material taught by Dr. Mohammed Awad Ahmed)

Q3) SHORT ANSWER (17 MARKS)

Instructions: Read the statement below and then write a short **BEST** answer of the question. The short answer section worthies **total of 17 marks**.

1) List the procedure of contouring in the following cases:

a) Structure contour map (faulted surface)

b) Thickness contour map

Q4) SHORT ANSWER (18 MARKS)

Instructions: Read the statement below completely and thoroughly then write a short **BEST** answer of the question. The short answer section worthies total of **18 marks**.

1. List a step-by-step procedure of well logging interpretation using Interactive Petrophysics software. Be specific and detailed.

BEST WISHES

لجنة الامتحان و التصحيح * ا.م.د. عادل كامل* - د.محمد عوض.*

الاختبار النهائى للفصل الدراسى الثانى المستوى الاول برنامج جيولوجيا التعدين والبترول	كلية العلوم - قسم الرياضيات	المادة تفاضل وتكامل ١٣٢ ر الزمن ساعتان التاريخ ٢٨-٥-٢٠١٦

اجب عن الاسئلة الاتية

السؤال الاول : (٢٧ درجة)

(أ) -- احسب النهايات التالية:

(١) $\lim_{x\to 0}\frac{1-\cos x}{x^2}$ (٢) $\lim_{x\to 1}\frac{\sqrt{x}-1}{\sqrt[3]{x}-1}$

(٣) $\lim_{x\to\infty} x\sin\frac{1}{x}$ (٤) $\lim_{x\to 0}\frac{e^{2x}-1}{x}$

(ب)-- اوجد المشتقة الاولى $\frac{dy}{dx}$ للدوال الآتية:

(١) $y=x^{\sin x}$ (٢) $y=\cos(3x+y)$

(٣) $y=e^{\sin^2 x}$ (٤) $y=\tan\sqrt{x}$ (٥) $y=\left(x^2-\frac{3}{x^2}\right)^2$

السؤال الثانى: (١٥ درجة)

(أ)- اوجد مجال التعريف للدالة $f(x)=\sqrt{(x-1)(x-4)}$

(ب)- بين ما اذا كانت الدالة $f(x)=x\cos x$ زوجية ام فردية

(ج) – اوجد المشتقة الرابعة $y^{(4)}$ للدالة $y=x^2(x+1)^5$

(د) ادرس اتصال الدالة $f(x)=|x|$ وذلك عند $x=0$

السؤال الثالث : (٢٨ درجة)

احسب التكاملات الاتية

(أ) $\int xe^{3x^2}dx$ (ب) $\int\frac{\cos x}{1+\sin x}dx$ (ج) $\int(\sec x-\tan x)^2\,dx$

(د) $\int\frac{(x+1)(x+2)}{x}dx$ (هـ) $\int\frac{e^x}{\sqrt{e^x+1}}dx$ (و) $\int\sin^2 x\,dx$

(ز) $\int\frac{\sin\sqrt{x}}{\sqrt{x}}dx$

Mansoura University | Faculty of Science | Geology Department
Date: - 31/05/2015 | Allowed Time: - Two Hours | Full Mark: - 60 Marks
Final Theoretical Exam. | - | 2nd Term 2016

نظام الساعات المعتمدة - برنامج نوعي :- جيولوجيا البترول والتعدين - المستوي الأول
الورقة الامتحانية :- ج-113 - المقرر :- بصريات المعادن

OPTICAL MINERALOGY

ANSWER THREE QUESTIONS FROM THE FOLLOWINGS: -

Each Question = 20 Marks (Each part = 6.7 Marks)

1-Describe in detail:-
- A- Becke line.
- B- Double refraction.
- C- Ttwinkling

2-Compare between each pair of the followings:-
- A- Optic axis and optic angle.
- B- Mica plate and gypsum plate.
- C- Birefringence and relief.

3-Explain in detail:-
- A- Pleochroism.
- B- Interference colours.
- C- Refractive index.

4-Draw the followings:-
- A- Nicol prism.
- B- Critical angle & total reflection.
- C- Extinction and extinction angle.

Good Luck & Best Wishes

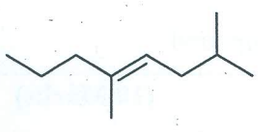
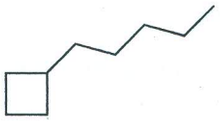
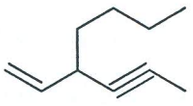
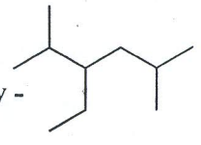
لجنة التصحيح:- أ.د. حسني غزالة - د. شعبان السيد مشعل*

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry		Second Term Time Allowed: 2 Hours Date: May. 2016 (4 – 6 - 2016) Full Marks: 60

Course(s): Chem.161 Principles of Organic Chemistry for 1st Level
Petroleum geology and mining students

Answer All Questions

Q1: A – Give the IUPAC name for each compound **(8 Marks)**

i -  ii -  iii -  iv - 

B - Complete the following equations **(8 Marks)**

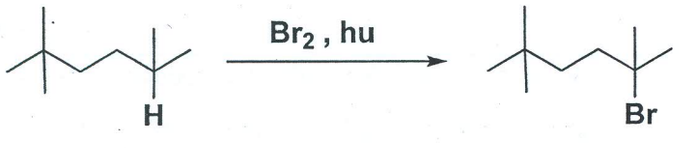
i - $CH_3CH_2CH_3 + 5\,O_2 \longrightarrow$ ---------- + ----------

ii - ---------- $\xleftarrow{\text{Na , ether}}$ $(CH_3)_3CBr$ $\xrightarrow{\text{Zn / HCl}}$ ----------

iii - $CH_3CH_2CH_2CH_3 + Cl_2 \xrightarrow{hu}$ ---------- + ----------

iv - $(CH_3)_2CHBr \xrightarrow{Mg}$ ---------- $\xrightarrow{CH_3Br}$ ----------

C - Calculate the percent yield of **2-bromo-2,5,5-trimethylhexane** results from radical monobromination of **2,2,5-trimethylhexane** with Br_2 in the presence of hν according to the following equation **(4 Marks)**



Q2: A - Complete the following sentences **(10 Marks)**

a- The IUPAC name of *t*-butyl chloride is ---------- in which number of 3^0 H atom equal ----------

b – The structural formula of *iso*-butane is ---------- while that of *neo*-pentane is ---------

c- Catalytic hydrogenation of 2-methylpropene give ---------- while that of 1-butene give ----------

d – The maximum number of structural formula for an alkyne with molecular formula C_4H_6 equal --------
while that of an alkene with molecular formula ---------- equal 4

e – Lewis acid is called ---------- while Lewis base is considered to be ----------

f - Catalytic reduction of alkenes to alkane is usually ---------- process and has heat of hydrogenation equal to about ----------*Kcal/mole*

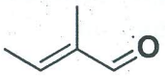
g – Cycloalkanes are ---------- hydrocarbons with general molecular formula ----------

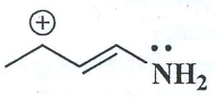
h– Stronger acid has ---------value of PKa and its conjugated base is ---------- one

i - The correct IUPAC name of 2-ethylpentane is -------- while that of 3-chloro-3-pentene is ----------

Please Turn to Next Page

B - Draw all reasonable resonance structures for each species use **curved arrows**. Compare the stabilities of these resonance structures indicating major and minor one. **(5 Marks)**

i - 

ii - 

C – For the following molecular formula. C_2H_4O **(5 Marks)**

*Draw Lewis structure * Count number of σ and π – bonds

* count number of bonding and non-bonding electrons

* determine the type of hybridization of each carbon and oxygen atoms in the compound

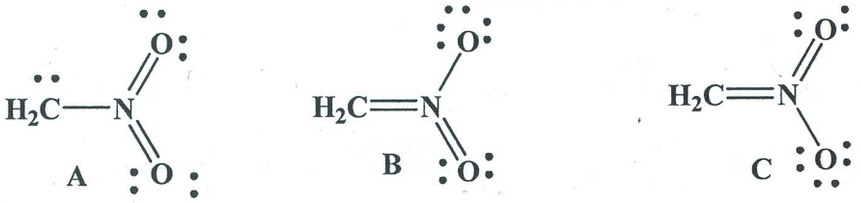
Q3: A - For an **alkene** with molecular formula C_5H_{10} **(10 Marks)**

*write the general equation for combustion

*write all structural formula (isomers) * Give the **IUPAC** name for each isomer

*arrange with **explanation** these isomers in an increasing order with respect to their stability

B - Consider Lewis formulas **A, B,** and **C**: **(5 Marks)**

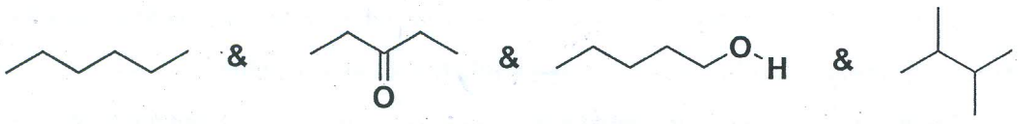


(i) Calculate Formal Charge for carbon and oxygen atoms in each structure **A, B,** and **C**

(ii) Explain why **A, B,** and **C** are resonance structures?

(iii) Which structure is most stable? Why?

C – The compounds shown below have the same (or similar) molecular weights. Arrange these compounds in order of increasing boiling point. Explain your answer in terms of the intermolecular forces in each compound **(5 Marks)**



Good Luck

Examiners ***Dr. Ebrahim Abdel-Galil***

Mansoura University
Faculty of Science
Zoology Department

Total degree: 60

May 2016
First Year- Petroleum and mineralogy
Subject: Biodiversity (Z131)
Date: 7 June 2016
Time Allowed: 2hr

Answer All the following questions

Question One: Complete: (20 degree)

1- The final host of *plasmodium* is .....
2- *Amoeba* reproduces by ..... and .....
3- The three types of sponge are ....., ..., and .....
4- The most characteristic cell of cnidarian is .....
5- The first appearance of the nervous system in ..... and it takes the shape of .....
6- In *Ascais*, the number of moultings is ..... and it takes place in ....., ... and .....
7- Acoelomate animals are represented by phylum ..... while coelomate animals are represented by phylum ....., ..., ... and phylum ..... which contain famous classes like ..... and .....

Question TWO: True or False: (20 degree)

1- The infective stage of *Balantidium* is the cyst with 2 nuclei.
2- Gemmule is formed in marine sponge.
3- Alternation of generation is found in the life cycle of *Schistosoma*.
4- *Fasciola* has an anus.
5- *Taenia* has a digestive system.
6- *Hydra* and *Planaria* has the ability of regeneration.
7- In chordates, the heart is ventral.
8- Mollusca has an economic importance.
9- Shell is formed by the mantle in Mollusca.
10- Arthropoda contain nearly 75% of the animal kingdom.

Question Three: (20 degree)

1- Define biodiversity.
2- Define the species according to John Ray.
3- Write briefly on locomotion in *Hydra*.
4- What are the functions of amoebocytes in sponge?
5- List the most important four characters of cnidarian.

Best wishes
Dr Sherif Ramadan