	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	FINAL EXAMINATION for level 4 (Geology) Students			
	COURSE TITLE:	Isotope Geology		COURSE CODE: GE4121
DATE:	JAN., 2015		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

1- *Answer the following questions* *(36 marks)*

1-Discuss how can determine the ages of:

a) deposition of sedimentary rocks,
b) determine the age of metamorphism,
c) fresh younger alkali feldspar granites,
d) shear and fault zone,
e) age of older rocks,
f) age of fossils.

2- Compare between the advantages of U-Pb and K- Ar method for dating

3- What is the difference between isochron, errochron, Concordia, Discordia

4- Discuss the applications of oxygen and Hydrogen isotopes in igneous rocks, stratigraphy and ore deposits.

5- Explain the epsilon Nd, initial Nd, epsilon Sr, initial Sr ratios in basic and acidic igneous rocks

6- What is the different analytical techniques used for dating zircon

2- *Put √ or × marks and correct the wrong ones:-* *(39 marks)*

1- U- Pb method used for dating unmetamorphosed sedimenatry rocks containing Rb- Bearing minerals such as glauconite, clay minerals and K- feldspar

2- The half life time of Sm is very short

3- The Sm- Nd method is useful for dating terrestrial rocks, stony meteorites and lunar rocks

4- The volcanic rocks in continental margin have low $^{87}Sr/^{86}Sr$ ratios

5- U- Pb method used minerals such as biotite, alkali feldspar and hornblende

6- K- Ar method is applicable for certain K- bearing minerals and rocks. It includes biotite, muscovite and hornblende.

7- Deplted mantle (DM) is characterized by very low $^{143}Nd/^{144}Nd$ ratios and high $^{87}Sr/^{86}Sr$ ratios.

8- Lu- Hf method is useful for dating basic rocks

9- Isobars are elements have the same atomic number and different in atomic mass

10- negative epsilon Nd indicate crustal origin

11- CP measures the isotopic ratios and determines the age.

12- Initial ratios is the measured ratios by instruments such as SHRIMP or Finngan Mat 262 mass spectrometer

13- Stable isotope stratigraphy depends on Osmium and sulfur isotopes

من فضلك انظر خلفه

3- Complete the followings: *(25 Marks)*

1- The absolute age determination depends on .....
2-Nd model age is the age .....
3- The granites have ..... ^{18}O oxygen isotopes whereas contain initial $^{87}Sr/^{86}Sr$ ratios between ..... and .....
4- SMOW is the standard used for ..... and ..... isotopes.
5- Sandstones contain high ^{18}O isotopes due to presence of some minerals such as .....
7- SHRIMP is used for measured the..... isotopes in some minerals such as..... whereas the LA-abilition ICP used for measure the .....
8- Uranium- Lead system has a .....half life time and used for determine the ..... age of rocks, whereas the K- Ar system have .... ..half life and used for .....
9- U- Pb system decays ..... whereas K- Ar decays.....
10- ..... isotopes is used for measure heat of formation whereas the .....is used for measure the crystallization age.

Examiners:

Prof. Mohamed F Ghoneim	*Prof Mohamed M Abu Anbar*
Prof Hassan Harraz	*Dr Ismael AbdelRasol*

Good Luck

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	FINAL EXAMINATION for level 4 (Geology) Students			
	COURSE TITLE:	Geochemistry		COURSE CODE: 4105
DATE:	JAN., 2015		TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions: (Part I) *(50 marks)*

1- **Compare between the following pairs:** *(18 marks)*

A-LILE and HFSE.

B-Partition coefficient and ionic optional.

C- Clark and Clark concentration.

D- Element camouflage and element Capture.

2- **Deduce the significant of the following in geochemistry:** *(18 marks)*

A-Rare Earth Elements.

B- Radioactive elements.

C- Chanderites.

D- Light REE.

3- **Say Why?** *(14 marks)*

A- Forsterite proceeds Fayalite during magmatic crystallization.

B- Despite of Li has an ionic radius similar to that of Mg and Fe2+, it cannot COMPATIBLE with Olivine crystal lattice.

C- A negative Eu anomaly is typical of many continental rocks, as well as most sediments and seawater.

If KD is more than one then the con. of the element will decreases with crystallization

Answer the following questions: (Part II) *(50 marks)*

1- **Write briefly on the following:** *(25marks)*

1- **Discuss Goldscmidt rule for major elements during magmatic crystallization and factors affect the distribution**

2- **Explain the Siderophile elements and their distribution in the earth.**

3- **Write on the geochemical aspects of crystallization of magmas as reveal by reaction series.**

4- **Explain the geochemical classification of the elements, basis of classification and their distribution in the earth.**

5- **Distinguish between the composition of meteorites and similarities with different part from the earth**

من فضلك انظر خلفه

2-Complete the followings: *(25marks)*

1- A-type granites characterize by ……..SiO_2 and …….Na_2O+ K_2O with …… magma type and characterize by some index minerals such as……..

2- The mantle is mainly formed from ……. elements whereas the crust is mainly formed from …….. elements such as …….

3- S- type granites are formed in …….setting due to …….. and have …… magma type.

4- Oceanic granites have ….. magma type, characterize by high contents of ….. and low contents of ……, They also formed as a ……..

5- Chlorine, fluorine and water ……. in the …… of crystallization with …… of complexity and increasing of ….. subsitutaion..

6- Volcanic arc granites have a ….. magma type and originated in …… tectonic settin

7- ……..magma have …… Al2O3 and low Na2O, K2O and CaO, it contains some characteristic minerals such as……

8- Ni and Cr elements occurs in …… rocks such as ……, contains high amount of ……elements

9- Uranium - thorium mineralization occurs in …… rocks as……., contains high amount of ……., ……, …..elements.

10- Within plate granites are ……type granites, formed in …… setting and have…… magma type.

Examiners:

Prof. Mohamed F Ghoneim	*Prof Mohamed M Abu Anbar*
Prof Bothina Taha ElDesouky	*Dr Ismael AbdelRasol*

Good Luck

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR FOURTH LEVEL GEOLOGY DEPARTMENT STUDENTS			
	COURSE TITLE:	PETROLEUM GEOLOGY -1		CODE NO. GE 4109
DATE:	JAN, 2015	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME : 2 HOURS

PETROLEUM GEOLOGY -1

Answer the following questions :

(Sketch maps and diagrams should be drawn whenever possible)

1- Give reasons on the followings : **(30 marks)**

a) Tertiary rocks are considered to be highly petroleum productive .

b) Vitrinite reflectance technique is used to measure the thermal maturity of kerogen.

c) Surface water causes secondary porosity.

2- Discuss the following subjects: **(30 marks)**

a) Source energy required for petroleum formation.

b) Factors affecting permeability.

c) Chemical reservoir rocks.

3- Write on the following items. **(40 marks)**

a) Kerogen types.

b) Well stimulation.

c) Geographic distribution of petroleum deposits.

d) Factors affecting the characters of fragmental reservoir rocks.

EXAMINERS	PROF.DR. NADER ELGENDY	DR. SHADIA ABDELRAHEEM

	Tanta University Faculty of Science Geology Department	Level 4 (Geology) Phanerozoic Geology of Egypt (GE 4101)	Time allowed: 2 hrs. Date: 4/1/2015	

Write briefly on the following:

1. Tectonic framework of Egypt during Paleozoic Era ..... (20 Marks)
2. Stable and unstable shelves of Egypt ..... (20 Marks)
3. Jurassic rocks at G. Maghara dome, northern Sinai ..... (20 Marks)

Answer the following questions:

4. Describe briefly three of the exposed Paleozoic rock units in Egypt in terms of: type locality, lithology, geographic distribution, boundaries and age assignment ..... (20 Marks)
5. "Marine Triassic sediments are only known from Araif El Naga dome North East Sinai" ..... (20 Marks)

   a- Give paleogeographic reasons

   b- Describe briefly the Araif El Naga and the Abu Nusra Formations

Examiners
Prof. A.T. Abdel-Hameed Prof. H. Khalil Prof. A. Masoud Prof. A. El-Shishtawy

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