	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SENIOR (LEVEL FOUR) STUDENTS OF CHEMISTRY/GEOLOGY			
	COURSE TITLE:	HYDROGEOLOGY 1		GE 4111
DATE:	JAN, 2014	FIRST SEMESTER	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible)

1-Write on Darcy's law and groundwater velocity determination. **(10 Mark)**

2- Discuss about the groundwater flow system and its governing factors.

(20 Marks)

3- Give the definition of the followings: **(20 Marks)**

a- Storage coefficient

b- Hydraulic head and gradient

c- Well efficiency

d- Laminar groundwater flow

4- Write briefly on distance-drawdown pumping test. **(20 Marks)**

5- Using two observation wells and one production well, how could we perform a pumping test for an aquifer **(20 Mark)**

6- Write on water budget equation and discuss water condensation process.

(10 Mark)

EXAMINERS	DR. ZENHOM E. SALEM

TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

FINAL EXAMINATION for level 4 (Chemistry-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- Chandorites.

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 Fe^{2+}, 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.

D- 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- Define the Magma type based on Al_2O_3 saturation

2- Explain Goldschmidt rule for major elements and factors affect the distribution during magmatic crystallization

3- Discuss the geochemical aspects of crystallization of magmas as reveal by reaction series.

4- Compare between the geochemical characteristics of A-type and M-type granites and their tectonic setting.

5- Discuss Siderophile elements and their distribution in the earth.

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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	Examination for Seniors (Fourth year) students of double courses			
	COURSE TITLE:	**Analytical Biochemistry**		COURSE CODE: 4149
DATE: 22 -1-13		FIRST TERM	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions:

I- Write the chemical structure of octa-peptide consists of : glu-lys-ser-tyr-cyst-trp-ala-gly. If this octapeptide is hydrolyzed into its constituent and subjected to cation exchanger chromatography on column sulphonated polystyrene to separate out amino acids. pI of glu= 3.1; lys=9.74; ser=5.7; tyr=6.42; cyst=5.3; try=7.8; ala=6.02 and gly=5.97. The pH of solution buffer that is used equal 3. Arrange amino acids eluted from this column. Explain your results. How can identify the amino acids quantitatively and qualitatively eluted from this column. **(10 marks)**

II- How can you determine the molecular weight of protein by using each of the following: **(10 marks)**

1- Mass spectronic methods (MALDI- TOF).
2- SDS polyacrylamide gel electrophoresis.

III- Fractionate the liver tissue into nucleus, plasma membrane, mitochondria, lysosome, endoplasmic reticulum, golgi apparatus, prixisomes and ribosome by using centrifugation, ultracentrifugation and equilibrium density gradient ultracentrifugation. Clarify the markers are used for confirmed separation of peroxisome, mitochondria, lysosome and plasma membrane **(10 marks)**

IV- **Clarify each of the following:** **(15 marks)**

1- ELISA technique and how can you determine hepatitis C virus by using indirect ELISA.
2- Western blot technique to determine the molecular weight of cytochrome C.

V- How can you separate eluted protein from diethyl amino ethyl cellulose (anion exchange) by using gradient NaCl and pH. **(5 marks)**

Many thanks
Best wishes
Prof. Ehab M. M. Ali