	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR (LEVEL 4) GEOLOGY/CHEMISTRY			
	COURSE TITLE:	Geology of Egypt		CODE: GE 4130
	DATE:	17 MARS, 2021	SEMESTER: 1	TOTAL MARKS:100
				TIME ALLOWED: 2 HOURS

Question 1:

(25 Marks)

A- Compare in a table between the Cenomanian rock units exposed in:

- 1- North Sinai
- 2- Central & southern Sinai
- 3- Two Galalas & Wadi Qena
- 4- El Bahariya Depression

In terms of: Formation name - Type section - Dominant lithology

B- What are the main geological characters of the Stable Shelf in Egypt.

Question 2:

(25 Marks)

"Marine Triassic sediments are only known from Araif El Naga dome North East Sinai".

A- Give paleogeographic reasons.

B- Discuss and draw the Triassic lithostratigraphic units at Araif El Naqa anticline, Northeast Sinai.

Question 3:

(25 Marks)

Illustrate by drawing only the stratigraphic succession of:

A- Paleozoic rock units in Um Bogma area

B- The Jurassic rocks exposed at Gabal El Maghara.

Question 4:

(25 Marks)


A- Discuss and construct the stratigraphic section of the Early-Middle Miocene (Red Sea facies)

B- Arrange from older to younger and state in a Table the: 1- Economic importance, 2- Type locality, 3- Main Lithology and 4- Age of each of the following rock units: (Fm. = Formation)

Belayem Fm. - Naqus Fm. - Um Bogma Fm. - Safa Fm. - Duwi Fm.

Best wishes

Examiners	Prof. Dr. M. Faris	Prof. Dr. Hamza Khalil
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR GRADE FOUR STUDENTS OF GEOLOGY			
	COURSE TITLE:	Special Course 2		
DATE:	JAN. 2021	SEMESTER: FIRST	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 2 HOURS

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

1- Discuss the followings:-

(15 Marks)

a- Global heat flow and vertical change in temperature across the earth interior.

b- Sources of heat in the earth.

2- Answer the followings

(15 Marks)

a- What is geothermal reservoir and how geothermal energy could be used directly.

b- How geothermal energy used for electric power generation.

3- Discuss about Cation Chemical Geothermometer.



(10 Marks)

4- Discuss about heat flow system in the continental areas.

(10 Marks)

EXAMINERS

PROF. DR. ZENHOM E. SALEM

	<p>Tanta University Faculty of Science Geology Department</p>	<p>.....Palynology-(3119) 3rd Year (Geology) امتحان آخر العام- الأحافير النباتية (علم حيوب اللقاح)</p>	<p>Time allowed: 2hrs. Date: 25/03/2021</p>	
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Answer the following questions

Question 1(30 Marks) Complete the following statements

1. Palynological techniques based on dissolving carbonates via1.....acid, and silicates via ...2.....acid. Also, we use...3..... acid to oxidize the residue (if needed) and4.... to stain the residue for better microscopic investigation.
2. The palynological residue may contain several types of palynomorphs such as...5.....,6.....,7.....,8.....,.....9.....,.....10.....
3. Dinoflagellates are appeared for the first time in the11.....period.
4. Some of dinoflagellates are toxic and causing the ...12.....
5. Dinoflagellates are more diversified when sea-level is13..... during ...14.....period.
6. Spores and pollen possess a wall consists of.....15.....and16.....
7. Acritarchs is found throughout the geological column and most common in the ...17...
8. Acritarchs vary in size but most species range18..... μm .
9. Dinoflagellates could have a single wall layer called19.....or have two wall layers called20.....and.....21.....
10. Spores are characterized by.....22..... mark in the middle.
11. Chitinozoa is very abundant in sediments.
12. Dinoflagellates are survive in fresh,23.....and ...24..... environments.
13. Pollen have different shapes from spores and characterized by the presence of pori or.....25.....
14. Intratabular processes is defined when we find one ...26... per ...27... in dinoflagellate cysts.
15. Tricolporate pollen is a pollen grain with three28.....and.....29.....
16. The concentration of pollen decreases rapidly as distances from shore-line30.....
17. Morphologically, motile dinoflagellates have31.....theca and32.....theca while its cyst have.....33.....cyst and ...34.....cyst.
18. Dinoflagellates could be35..... or heterotrophic.
19. The distribution of processes in dinoflagellate cysts may be36.....,37.....,38.....,39.....
20. The40is used determine the thermal maturity of organic material.


Question 2 (40 Marks)

- A. What is “the dancing dust of the sea”? (10 marks)
- B. Define the dinoflagellate cysts archeopyle and illustrate and name its types? (10 marks)
- C. How you can distinguish dinoflagellate cysts from acritarchs and spores from pollen?

(20 Marks)

Question 3 (40 Marks)

- A. List the applications of palynology? (10 Marks)
- B. What are acritarchs, illustrate and name five different of its body outline? (10 Marks)
- C. Write briefly on the relation of palynomorphs to sedimentation? (20 Marks).

	TANTA UNIVERSITY			
	FACULTY OF SCIENCE			
	DEPARTMENT OF GEOLOGY			
EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF GEOLOGY				
COURSE TITLE:	Final Exam of Ore Mineralogy			COURSE CODE:GE4226
DATE:	2021	TERM: SECOND	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Part I: (50 marks)

1-Write on the following ,illustrating your answer with drawing (35marks):

- a-Numerical aperture. b-Anisotropism
- c- Mechanical and thermal deformation of polished section.
- d-Reflectors. e-Kalb light line test

2-Answer the following with drawing only (15 marks) :

- a-Illuminating system. b-Free working distance.
- c-Shapes and fractures features of microindentation hardness.

Part II: (50 marks)

Write briefly on the following, illustrate your answer with drawing if it possible:

- 1- Replacement textures.
- 2- Colloform textures in supergene minerals.
- 3Exsolution textures in oxide minerals .
- 4- Pentlandite- Pyrrhotite, chalcopyrite-bornite and Chalcopyrite-Sphalerite exsolution textures.
- 5-Growth zoning b-Oolitic texture

Examiners: Prof. Ibrahim Salem

Prof: Bothina El-Desoky



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

EXAMINATION FOR LEVEL FOUR STUDENTS OF GEOLOGY (SPECIAL GEOLOGY)

COURSE TITLE

PRECAMBRIAN GEOLOGY

COURSE CODE:GE4206

DATE:

DEC 2020

SEMESTER FIRST

TOTAL ASSESSMENT MARKS :100

TIME ALLOWED:2HOURS

Answer the following questions:

1-Mention the major rock units and rock varieties in the classification of the Precambrian rocks of Egypt given by Akaad and Abu El Ela (2002).....(25 marks)

2- Write short notes on the following:

a-Petrographic varieties of serpentinites , metasediments and Hammamat sediments.....(6 marks)

b-Mode of occurrences of the ophiolites of Egypt.....(6 marks)

c- Classification of the metavolcanics in the Eastern Desert of Egypt..... (6 marks)

d- The typical ophiolite succession of the world.....(7 marks)

3-Compare between :

a- The ophiolitic metagabbros , intrusive metagabbro-diorite complex and unmetamorphosed gabbros in the light of their mode of occurrences(12 marks)

b-The older and younger granites in the light of their petrographic and petrochemical characters.....(13 marks)


4-Write on the following:

a-Tectonic settings of the metavolcanics, Dokhan volcanics and Hammamat sediments.....(9 marks)

b-Origin of the Egyptian serpentinites.....(9marks)

c-Radiometric ages of the Dokhan volcanics ,Natash volcanics and ring complexes.....(7 marks)

Examiner : Prof .A.M.Abu El Ela

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION FOR SENIORS (FOURTH YEAR) STUDENTS OF GEOLOGY (Graduation Requirement)		
	COURSE TITLE:	MINING GEOLOGY	COURSE CODE: 4208
DATE:	DEC, 2020	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Illustrate your answers with drawing if it possible

Part I..... (50 marks)

Question One: Write briefly on the following..... (50 marks)

- 1- Types of surface mining methods.
- 2- Types of underground supports.
- 3- Vertical and inclined shafts.
- 4- The first and the fourth stages in the life of a mine.
- 5- Types of explosives.

Part II..... (50 marks)

Question One: Compare between the following pairs..... (25 marks)


- 1- Prospection programs in old gold mine area with gold and sulphide-bearing quartz veins and in Wadi with placer gold.
- 2- Expectation skeleton of uranium deposit formed due to intrusion of trachyte sills in mudstone and that of uranium deposit formed due to intrusion of sheared trachyte sills in sandstone.
- 3- Traps of gold due to intrusion of granite into sheared serpentinites and due to weathering of sheared meta-andesite.

Question Two: Detect the right and wrong sentences and then correct the wrong ones, explaining your answers..... (25 marks)

- 1- Gold deposits usually occur in quartz veins.
- 2- Unconformity surfaces are possible traps of uranium.
- 3- To find gold mineralizations, paleo-soils are necessary.
- 4- Prospection of gold depends on detection of the wadi ore fragments intensity, as it is an indication for the abundance and distribution of the ore.
- 5- Prospection of uranium depends of literature data with drilling wells and intensive sampling.

With all the best

EXAMINERS	PROF. IBRAHIM A. SALEM	PROF. MOHAMED M. HAMDY
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	FINAL EXAMINATION for level 4 (Geology) Students		
	COURSE TITLE:	Geochemistry	COURSE CODE: GE4105
DATE:	FEB., 2021	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

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

I- TIC THE CORRECT ANSWER (25 marks)

1-Ratio of of FeO/Fe₂O₃

- A-Increases by crystallization of magma.
- B-Decreases by crystallization of magma.
- C-Remain constant during crystallization of magma.

2-Ca proceeds Na during crystallization of magma due to

- A- Ca is larger in atomic radii.
- B- Na has univalent charge.
- C- Ca has more ionic potential.

3-One and the same element composition has

- A- Constant K_d for all minerals.
- B- Various K_d for different elements.
- C- Incompatible for all silicate minerals.

4- Foresterite mineral lattice contains Ni ion as

- A-Camouflaged ion
- B-Captured ion
- C-Admitted ion

5- Chondrite Meteorite is useful for

- A-Determine the composition of Sun
- B- Determine composition of the earth crust
- C- Determine the composition of the whole earth
- D- All above points

II- SAY WHY ? (12 marks)

- A. LREE are highly incompatible elements relative to HREE.
- B. Na proceeds K in Feldspar during magma crystallization.
- C. Elements which have greater $K_D=1$ are compatible element.
- D. A negative Eu anomaly of REE pattern is typical of many continental rocks, as well as most sediments and seawater.

III- COMPARE BETWEEN THE FOLLOWING PAIRS: (13 marks)

- A. Clark and Clark concentration.
- B. Siderophile and Lithophile elements.
- C. LILE and HFSE.
- D. Volatile and Semi-Volatiles elements during magmatic crystallization.

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

1-Complete the followings:

(25marks)

- 1- Geochemical classification of the elements based on,, and classified into,,
- 2- The mantle is mainly formed from elements whereas the crust is mainly formed from elements such as
- 3- Normative composition of S-type granites should include,and..... minerals and these rocks formed intectonic setting due to and have magma type.
- 4- A-type granites characterize by SiO_2 and $\text{Na}_2\text{O} + \text{K}_2\text{O}$ with magma type and characterize by some index minerals such as.....
- 5- Chlorine, fluorine and water in the of crystallization with of complexity and increasing of Substitution.
- 6-magma has Al_2O_3 and low Na_2O , K_2O and CaO , it contains some characteristic minerals such as.....
- 7- Ni and Cr elements occurs in rocks such as, which contains high amount ofelements
- 8- Uranium - thorium mineralization occurs in rocks for example,rocks contain high amount of,,elements.
- 9- The tholeiitic magma characterized by high amount of and low amount ofwhereas Calcalkaline magma cotians high amount of and low amounts of
- 10- Volcanic arc granites have a magma type and originated in tectonic setting

2- Write briefly on the following:

(25marks)

- 1- Discuss Goldschmidt rule for major elements during magmatic crystallization and factors affect the distribution
- 2- Explain the Siderophile elements and their distribution in the earth.
- 3- Distinguish between the composition of meteorites and similarities with different part from the earth
- 4- Compare between the geochemical characteristics of A-type and M-type granites and their tectonic setting.
- 5- Define the Magma type based on Al_2O_3 saturation

Examiners:

Prof. Mohamed F Ghoneim

Prof Mohamed M Abu Anbar

Good Luck



TANTA UNIVERSITY
FACULTY OF SCIENCE
DEPARTMENT OF GEOLOGY

FINAL EXAMINATION for Level 4 (Chemistry- Geology) Students

COURSE TITLE:	GEOCHEMISTRY	COURSE CODE: GE4105	
DATE:	FEBRAURY, 2021	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Answer the following questions, illustrating your answers with drawing if it possible:

Question One:-Put \checkmark or \times marks and correct the wrong ones:- (10 marks)

- 1- Rhyolite in Cox et al. (1979) volcanic rock classification characterize by low SiO_2 and $\text{Na}_2\text{O} + \text{K}_2\text{O}$
- 2- The mantle is mainly formed from lithophile elements whereas the crust are mainly formed from chalcophile elements such as Ca and Li
- 3- Oceanic granite is A- type granites, mainly alkali feldspar granites, contains garnet and formed in island arc setting.
- 4- XRF used for analyses of REE in minerals and rocks whereas XRD used for isotope analyses.
- 5- The tholeiitic magma characterized for rocks contains high amount of sodium and potassium and contain high amounts of fluorine.

Question Two:-Write briefly on the following: (20 marks)

- 1- Magma type definition based on Al_2O_3 saturation
- 2- Goldschmidt rule for major elements and factors affect the distribution during magmatic crystallization
- 3- Geochemical aspects of crystallization of magmas as reveal by reaction series.
- 4- Geochemical characteristics of A-type and M-type granites and their tectonic setting.
- 5- Siderophile elements and their distribution in the earth.

Question Three:-Complete the followings: (20 marks)

- 1- A-type granites are characterized by SiO_2 and $\text{Na}_2\text{O} + \text{K}_2\text{O}$ with magma type and are characterized by some index minerals such as..... and Setting
- 2-Geochemical classification of the elements is based on,, and classified into,,
- 3-Chlorine, fluorine and water..... in the of crystallization with of complexity and increasing of.....substitution
- 4-Oceanic granites have magma type, are characterized by high contents of and low contents of They also formed as a
- 5-Uranium - thorium mineralization occurs in rocks ascontains high amount of,,elements
- 6- The tholeiitic magma is characterized by high amount of and low amount of whereas Calc-alkaline magma contains high amount of and low amounts of
- 7- Ni and Cr elements occurs in rocks such as, contains high amount ofelements

انظر خلفه

8- Normative composition of S-type granites should include,and and formed insetting due to and have magma type.

9- Volcanic arc granites have a magma type and originated in..... tectonic setting

10- Meteorites are classified into,, and similar to,, respectively.

Question Four: Compare between the following (30 marks)

- 1- Behavior of the LILEs and REEs during metamorphism.
- 2- compositions of peridotites and the derived basaltic melt respecting
 - Al_2O_3 and NiO,
 - La and Lu,
 - IPGEs and PPGEs.
- 3- compositions of volcanic rocks in MOR, IA and OI respecting
 - LILEs
 - K_2O ,
 - LREEs and HREEs
- 4- Precession of analysis of SiO_2 and accuracy of analysis of Cr

	SiO_2 (sample)	SiO_2 (standard)	Cr (sample)	Cr (standard)
Replicate 1	44.12 wt. %	44.11 wt. %	2686 ppm	3065 ppm
Replicate 2	44.13 wt. %		2891 ppm	
Replicate 3	44.09 wt. %		2969 ppm	

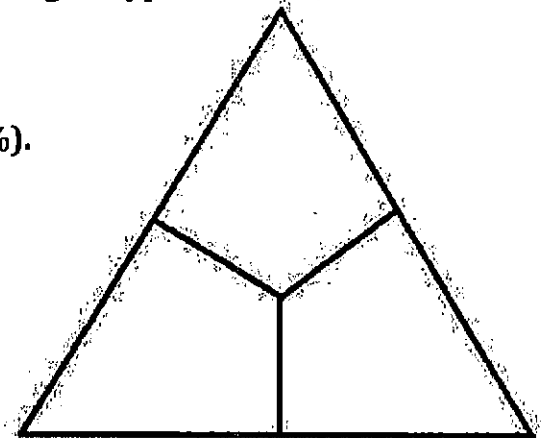
Question Five(20 marks)


1- On a triangular relationship (x, y, z) compare between compositions of peridotite and the derived melt in case of fractional and equilibrium melting respecting $CaMgSi_2O_6$, $CaAl_2Si_2O_8$, SiO_2

2- On a triangular relationship (x, y, z) detect the magma type: alkaline, calc-alkaline, tholeiitic on the basis of:

- CaO (22.78 wt. %), K_2O (5.15 wt. %), Al_2O_3 (18.43 wt. %).
- Nb (0.04 wt. %), La (2.45 wt. %), Li (1.76 wt. %).

Best Wishes



	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION FOR SENIOR (LEVEL FOUR) STUDENTS OF GEOLOGY		
	COURSE TITLE:	HYDROGEOLOGY 2	COURSE CODE: GE4212
DATE:	JAN. 2021	TERM: SECOND	TIME ALLOWED: 2HOURS

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

1-Give reasons on the following: (16 Marks)

- a- Base exchange process causes changes in the properties of soils.
- b- Sodium concentration is an important parameter for irrigation water.

2-Write short notes on the following :- (24 Marks)

- a-Two graphs used for representing analysis of groundwater quality.
- b- Water quality criteria for industrial purposes.
- c- Hardness of groundwater.


1. Write on the following subjects:- (40 Marks)

- a- Factors controlling groundwater pollution and Drastic Index
- b- Point and non-point pollution sources.
- c- Seasonal, Rain out, Altitude and latitude effects on precipitation stable isotopic composition.

2. Write on the following subjects:- (20 Marks)

- a- Nile Delta Quaternary aquifer.
- b- Moghra aquifer.

EXAMINERS	PROF. DR. MOHAMED GAMAL ATWIA	PROF. DR. ZENHOM E. SALEM
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION FOR (LEVEL,4) SPECIAL GEOLOGY		
COURSE TITLE:	Phanerozoic Geology of Egypt 1	CODE: GE 4101	
DATE:	27 FEB, 2021	SEMESTER: 1	TOTAL MARKS:100
			TIME ALLOWED: 2 HOURS

Question 1: **(20 Marks)**

Arrange from older to younger and state in a Table the: 1- Economic or Stratigraphic importance, 2- Type locality, 3- Main Lithology and 4- Age of each of the following rock units:

Hamamat Sediments - Naqus Formation - Araba Formation - Um Bogma Formation - Abu Nusra Formation - Safa Formation - Duwi Formation

Question 2: **(20 Marks)**

Discuss and illustrate by drawing the Campanian - Maastrichtian lithostratigraphy in Dakhla-Kharga, Nile Vally and Quseir-Safaga district.

Question 3: **(20 Marks)**

Discuss and draw the lithostratigraphic units of the Paleozoic outcrops in the Eastern Desert

Question 4: **(20Marks)**

Illustrate by drawing only:

a- Subsurface lithostratigraphic of the Paleozoic rocks in the northern portion of the western Desert.

b- Generalized lithostratigraphic column of the Jurassic rocks exposed at Gabal El Maghara.

Question 5: **(20 Marks)**


Compare in a table between the Cenomanian rock units exposed in:

- 1- North Sinai**
- 2- Central & southern Sinai**
- 3- Two Galalas & Wadi Qena**
- 4- El Bahariya Depression**

In terms of: Formation name - Type section - Dominant lithology

Best wishes

Examiners	Prof. Dr. Hamza Khalil	Dr. M. Sobhy
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY		
	EXAMINATION FOR (LEVEL 4) SPECIAL GEOLOGY		
1969	COURSE TITLE:	Phanerozoic Geology of Egypt 1	CODE: GE 4101
DATE:	27 FEB, 2021	SEMESTER: 1	TOTAL MARKS:100
			TIME ALLOWED: 2 HOURS

Question 1: **(20 Marks)**

Arrange from older to younger and state in a Table the: 1- Economic or Stratigraphic importance, 2- Type locality, 3- Main Lithology and 4- Age of each of the following rock units:

Hammamat Sediments - Naqus Formation - Araba Formation - Um Bogma Formation - Abu Nusra Formation - Safa Formation - Duwi Formation

Question 2: **(20 Marks)**

Discuss and illustrate by drawing the Campanian – Maastrichtian lithostratigraphy in Dakhla-Kharga, Nile Vally and Quseir-Safaga district.

Question 3: **(20 Marks)**

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- 4- El Bahariya Depression

In terms of: Formation name - Type section - Dominant lithology

Best wishes

Examiners	Prof. Dr. Hamza Khalil	Dr. M. Sobhy
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	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SENIORS STUDENTS OF GEOLOGY			
	COURSE TITLE:	PETROLEUM GEOLOGY-1		COURSE CODE: GE4109
DATE:	10/31 2021	SEMESTER: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

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

1- Why Tertiary rocks are considered to be highly petroleum productive. (10 marks)

2- Give an account on: (30 marks)

- a) Surface occurrence of petroleum.
- b) Organic reservoir rocks.

3- Give reasons on the followings: (30 marks)

- a) The rock textures affect the character of porosity and permeability.
- B) Some materials are acts as sealing to stop oil movement.
- c) The total organic carbon (TOC) is used in source rock evaluation.

4- Discuss the following subjects: (30 marks)

- a) Biogenic and thermogenic hydrocarbons
- b) Factors affecting permeability.
- c) Well stimulation,

EXAMINERS	PROF. DR. NADER EL GENDY	DR. SHADIA ABO EL REHIM
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