



First Semester Final Examination Subject: Course No. G433 (Geochemistry)
 Students: B.Sc. Students (Geology and Geology-Chemistry) Date: Jan., 20 , 2019

II- Geochemistry of sediments**Time allowed: one hour****Examiner: Prof. Dr. Mamdouh F. Soliman**

الامتحان في أربع صفحات

Write your answers in the same sheets

اكتب أجابتك في نفس ورق الأسئلة

I- Select or write the correct answer for the following: (Qs 1-17 one mark for each)**1-Asteroids are composed of:**

- A. carbonaceous bodies B. silicate bodies
 C. gas and ice D. B above E. A and B above

2- Which one of the following is NOT typical of "siderophile elements?"

- A. They are PGE
 B. They are oxides
 C. They are carbonates

3-Trace elements are normally classified either on:

- A. The basis of their position in the periodic table
 B. According to their behavior in magmatic system.
 C. Non of above
 D. Both in A. and B.

4-In chemical weathering, acidic water with pH 0-7 possesses a

- A. Intermediate decomposition action
 B. Strong decomposition action
 C. Decomposition rate depends on the difference between the pH of the solution and the pH of the pure water.
 D. Rather weak decomposition action

5- Write by the chemical equation the extensive dissolution of the mineral magnesite in nature?

.....

6- Above the pH of 4, alumina is almost:

- A. Soluble B. Insoluble C. Stable

7-Write by the chemical equation the hydration of the mineral anhydrite

.....

8-Write by the chemical equation the hydrolyses of the mineral forsterite

.....
.....
.....

9- The argillaceous (Hydrolyzates) substances are characterized by the following, EXEPT:

- A. their occurrence as solid insoluble particles
- B. their transportation as suspended particles
- C. their certainly smaller particle size
- D. They consist partly of the chemically undecomposed materials
- E. They entirely composed of amorphous materials

10-The main source rocks of the soil " Bauxites" are:

.....

11-Which one of the following is NOT typical for the " oxidates "

- A. Ferrous sulphate oxidized to Ferric hydroxide
- B. Magnetite, ilmenite, chromite are resistance to weathering.
- C. Sulphide minerals of iron oxidized to ferrous sulphate and H_2SO_4 .
- D. Silicates containing ferrous iron are resistant to weathering

12- Higher stages of oxidation gives the most mobile ions of Mn..

- A. True
- B. False (if false, please correct the wrong)

.....
.....

13-Which one of the following is NOT typical for the " Reduzates

- A. They are the opposites of the oxidates.
- B. They formed in strongly reducing environments.
- C. They are deposited in land-locked waters and in other places of poor circulation.
- D. Coal and petroleum which are organogenic sediments are not belong to reduzates.
- E. The reduzates are not include muds or black shale

14- In Sulphidic environments, the diagenetic sequence has reached the stage at which the bacterial reduction of dissolved sulphate takes place with production of H_2S .

The H_2S would react with the chalcophile elements to produce sulfides.

Give three examples

- A. ----
- B. ----
- C. ----

15- There is an important and consistent decrease in $\delta^{13}C$ with depth of water

- A. True (if true, why?)
- B. False ((if false, why?)

.....
.....
.....

A. True
B. False

- A. is derived primarily from planktonic and bacterial remains deposited in marine environments
- B. is consisted primarily of liptinites derived from algal and bacterial remains, often deposited in aquatic or estuarine environments.
- C. is formed principally from the remains of vascular plants

(2 marks for each)

This image shows a full page of white paper with horizontal dotted lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the width of the page. There is no text or other markings on the paper.

19- Give possible explanations for the following geochemical signatures in stratigraphic record:

- A. Sharp decrease in $\delta^{18}\text{O}$ associated with increase in Ca, Na, Cl
- B. Sharp decrease in $\delta^{18}\text{O}$ associated with increase in bauxite

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20-The organic materials in marine sediments include:

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2-The primary factors affecting the manner of migration of iron are the presence or absence of O_2 and CO_2 ----- Explain that?

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بسم الله الرحمن الرحيم

ASSIUT UNIVERSITY
FACULTY OF SCIENCE
GEOLOGY DEPARTMENT

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

دور يناير 2019 إمتحان المستوى الرابع جيولوجيا البترول الزمن ساعة
مقرر 427 ج ب (الجزء الثانى - أحواض ترسيب مصرية) 4 صفحات، 25 درجة

Part 2: Sedimentary basins in Egypt (4 pages, 25 Marks)

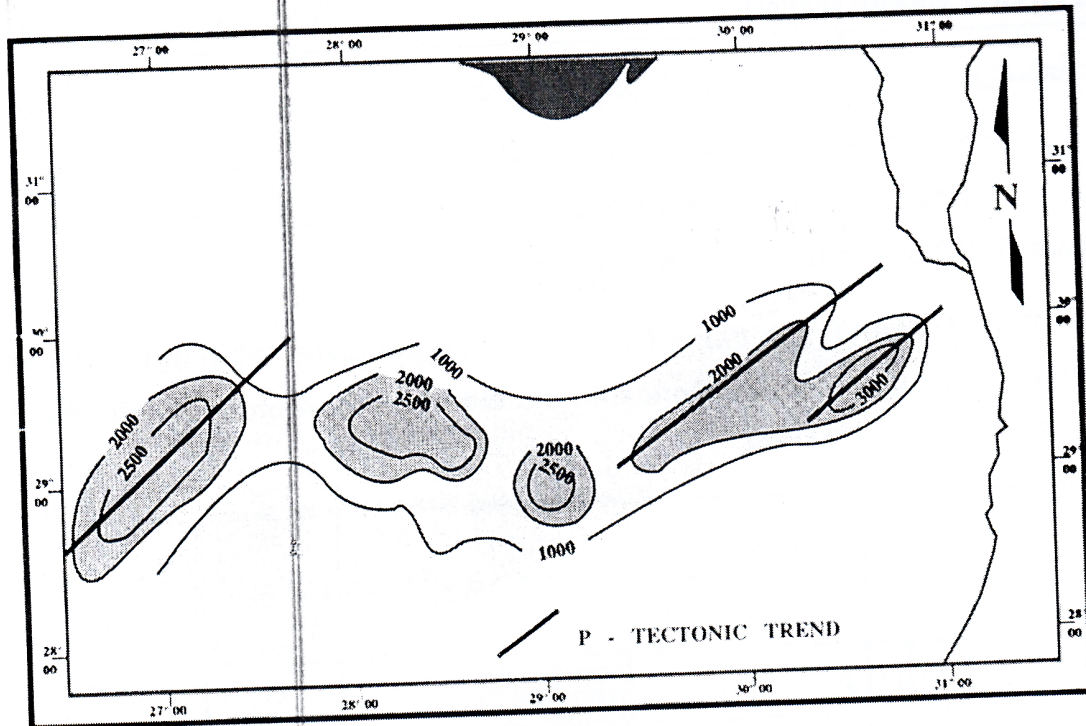
Answer TWO of the following questions:

QUESTION 1: Identify the items from 1 to 32 in the given table of the generalized stratigraphic column of the Cenozoic basins and oil potentialities in the Gulf of Suez Region. (12.5 Marks)

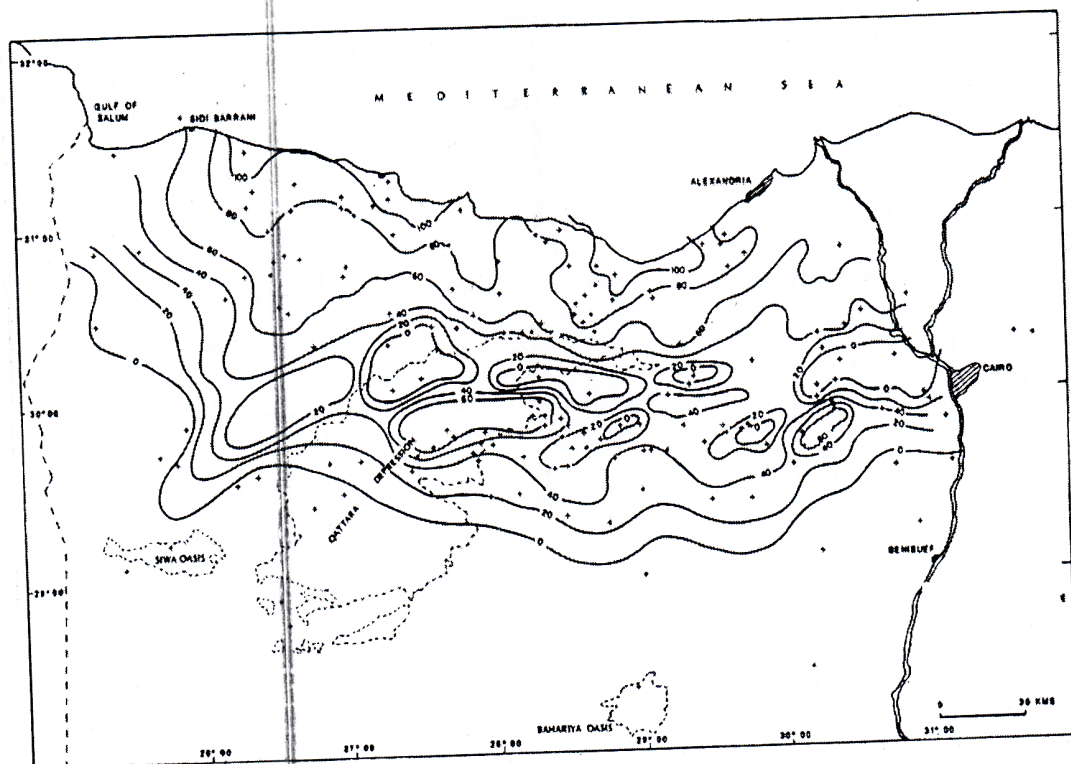
Time units Epoch & Age = Series & Stage		Rock units Formations & members		Lithology	Thickness	33	Reservoir Rock	Oil Field
2	6	13	31		3000 feet		X	●
		12	30		2300 feet		X	●
	5	11	29		1400 feet		X	●
			Feiran					
			28					
			27					
	4	10	26		1000 feet	☐		●
			25					
		9	24		32	☐	X	●
			23					
			22					
			21					
		8	Khoshera		1200 feet	☐	X	●
			20					
			19					
			18					
1	3	7	Abu zenima & Tayiba Beds		450 feet			

QUESTION 2 (A-D):

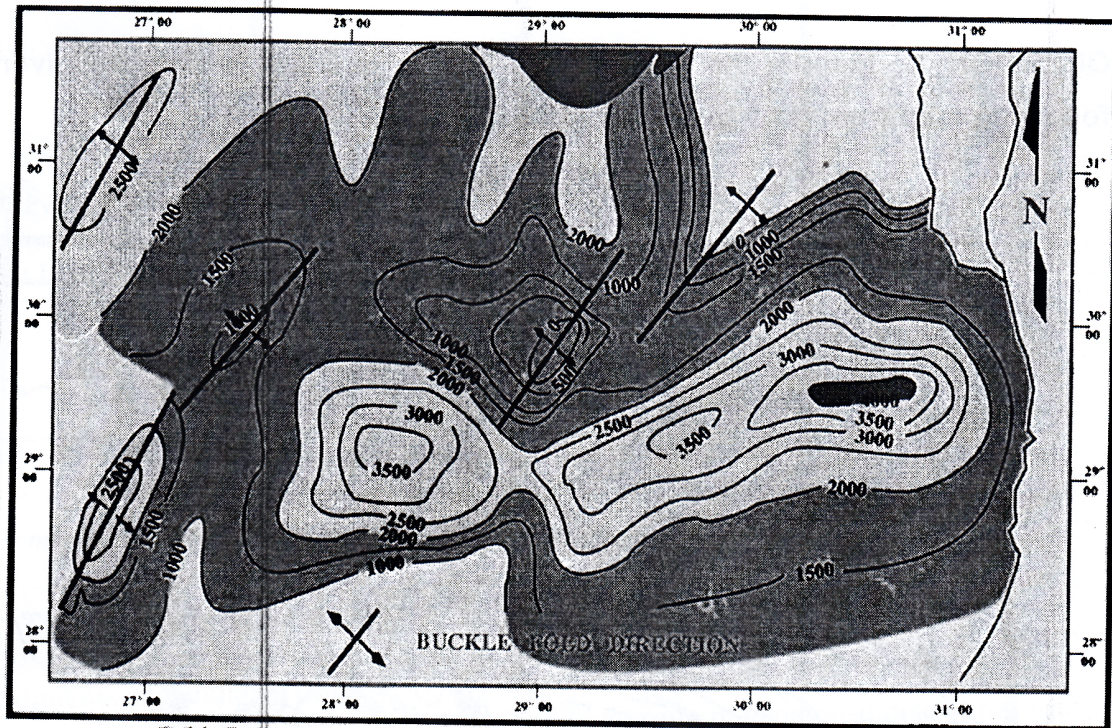
Identify the name, age, lithology and depositional environment of the subsurface rock units whose thickness and areal distribution in the northern Western Desert are given in the following isopach maps from A to D . (12.5 Marks)



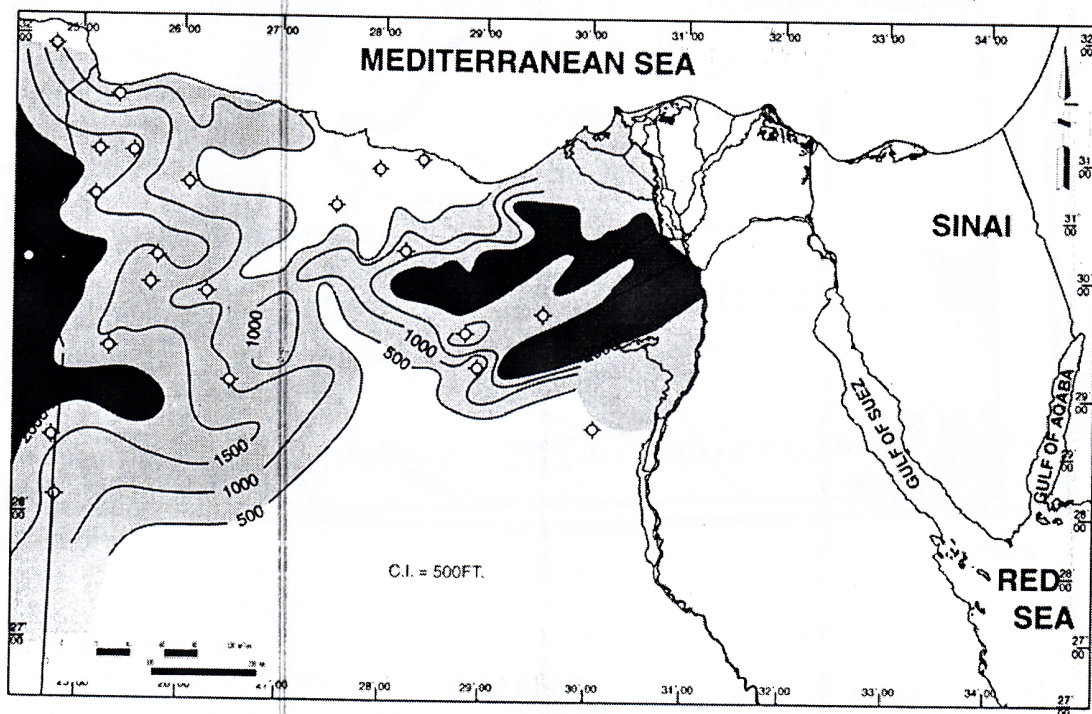
A



B

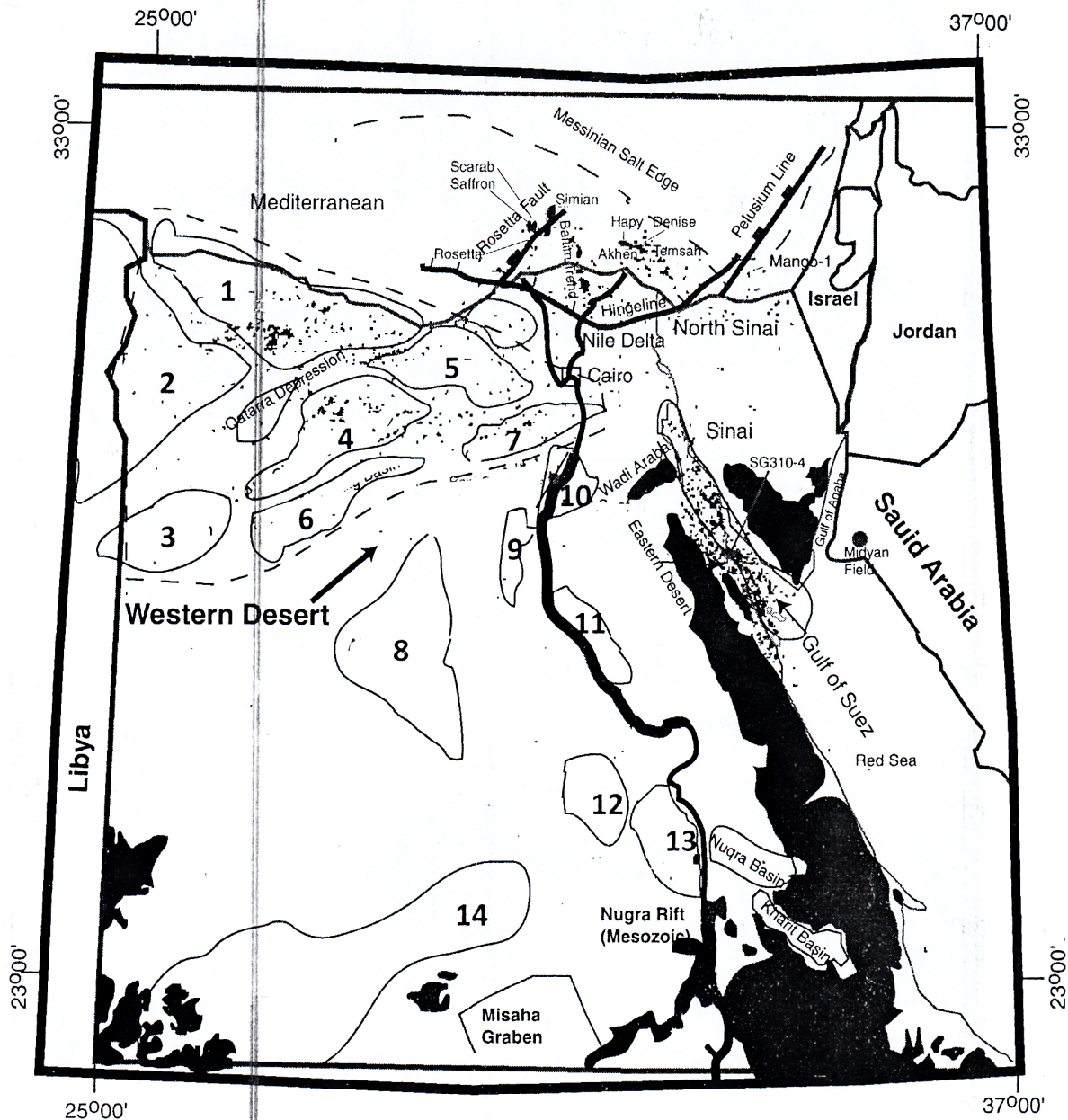


C



D

QUESTION 3: Identify the sedimentary basins in Egypt which are given in the following map from No.1 to No.14. (12.5 Marks)



Good Luck
Prof. Dr. Khaled Ouda



First term examination

Basin analysis & Egyptian sedimentary basins (427 PG)

Students: 4th level of Petroleum Geology

First part: Basin analysis (25 marks)

Answer the following questions

1. True or False (5 marks):

- a. A sedimentary basin is a low area in the Earth's crust of tectonic origin, in which sediments accumulate (One mark).
- b. Basin modeling is a term broadly applied to a group of geological disciplines that can be used to analyze the formation and evolution of sedimentary basins (One mark).
- c. Back-stripping is a geophysical analysis technique used to quantitatively estimate the depth that the basement would be in the absence of sediment and water loading (One mark).
- d. In pre-depositional basins, rapid tectonic movements predate significant sediment accumulation and create a morphological basin, which is filled later by post tectonic sediments (One mark).
- e. Sedimentary basins are separated from another by raised linear areas termed arches, paleo-highs, schwelle, or positive areas (One mark).

2. Write short notes on the following items (5 marks):

- (a) A back-stripping method of basin analysis (2.5 marks).
- (b) Stratigraphic cross sections (2.5 marks).

3. Fill in the following spaces with appropriate terms (5 marks):

- (a) is large trough like or basin like down warping of the crust in which thick sedimentary and volcanic rocks accumulated (One mark).
- (b) is a map that shows by means of contour lines the thickness of a given formation or rock unit (One mark).
- (c) Basin relief can be created mechanically on a regional scale in two very important ways: or (One mark)
- (d) are special kinds of rifts, often referred to as failed rifts that are presumably the failed arms of a triple-point junction (One mark).
- (e) form within stable continental interiors as shallow, circular or ovate down-warps and have long histories of relatively slow subsidence (One mark).

4. Describe the following items (5 marks):

- (a) Basin shapes (2 marks).

(b) Strike-Slip/Transform Fault (3 marks).

5. Choose the correct answer (5 marks):

1. Basin analysis is a program of study that involves application of the following principles (One mark):

- | | | |
|-------------------|------------------|-----------------------|
| A. Sedimentologic | B. Stratigraphic | C. Tectonic |
| D. All the above | E. Both A and C | F. None of the above. |

2. A hydrocarbon trap is some kind of (One mark):

- | | | |
|---------------------|------------------------|-----------------------|
| A. Structural trap. | B. Stratigraphic trap. | C. An organic trap. |
| D. All the above. | E. Both A and B. | F. None of the above. |

3. Basin assessment is commonly carried out by teams of workers, which may include (One mark):

- | | | |
|-----------------------|---------------------|-----------------------------|
| A. Stratigraphers | B. Sedimentologists | C. Sedimentary petrologists |
| D. Paleontologists | E. Geophysicists | F. Hydrologists. |
| G. None of the above. | H. Both E and F. | I. All the above. |

4. Which of the following is not a type of trap (One mark):

- | | | |
|--------------------|-----------------------|-----------------------|
| A. Structural trap | B. Stratigraphic trap | C. Source trap. |
| D. All the above | E. Both B and C. | F. None of the above. |

5. Basins are separated from another by (One mark):

- | | | |
|-------------------------|------------------|-------------------|
| A. Raised linear areas. | B. Fault scarps. | C. Depressions. |
| D. Plane surface areas. | E. Both A and D. | F. All the above. |

Good luck

Dr. Abdalla El Ayyat

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريري للمستوى الرابع بكلية العلوم شعبة الجيولوجيا والكيمياء

المادة: خريطة مصر الجيولوجية (410 ج)
(Geologic Map of Egypt (410 G))

الزمن: ساعتان

الدرجة: 50 درجة

دور يناير 2019/2018م

ملحوظة: الامتحان يتكون من صفتين

Answer the following questions:

First Question: (15 Marks)

- 1) Compare in a geologic time table between the Cenomanian sediments at north Sinai and Bahariya Oasis.
- 2) Give reasons:
 - i- The restricted occurrence of marine Triassic rocks in the north eastern part of Egypt.
 - ii- The economic and scientific important of Carboniferous rocks in Egypt.
 - iii- The absence of Paleozoic rocks in the most parts of Egypt.
 - iv- The differences in the facies of the Neogene rocks along the Red Sea coast.
- 3) Write briefly an essay on the early Cretaceous rocks in Egypt, illustrating their important.

Second Question: (15 Marks)

- 1- In a geologic time table trace and arrange the Nile Valley Eocene rock units from Upper to Lower Egypt, explaining the economic important of these rocks.
- 2- Construct a geologic time table for the Neogene (Miocene & Pliocene) rock units in the Nile Delta region, discussing the petroleum activities in this region.

Third Question: (10 Marks)

- 1- Sketch the subsurface stratigraphic sequence of the Paleozoic strata in north Western Desert.
- 2- Discriminate between the Jurassic rock units at Gebel Maghara, Sinai.

انظر خلف الصفحة

Fourth Question: (10 Marks)

1- Define the geologic age and the stratigraphic relationship for six only of the following rock units:

- | | |
|----------------------------|------------------------|
| i- Qasib & Lakia | ii- Kharita & Bahariya |
| iii- Wadi Natrun & Bahrein | iv- Abu Roash & Khoman |
| v- Tenih & Dabaa | vi- Maghrabi & Taref |
| vii- Abu Aggag & Timsah | |

2- Describe briefly one only of the following items:

- i- The surface Oligocene rocks in Egypt.
- ii- The Middle-Upper Eocene rocks in Fayoum region.

Good Luck

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Prof. Dr. Nageh A. Obaidalla

Assiut University
Faculty of Science
Department of Geology



Final Exam

Date: Jan. 2019
Time allowed: two hours

Subject: Petroleum Geology (G 460), 4th level, special geology,
geochemistry and geophysics groups, Total 50 Marks

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Pat I (Petroleum Geology 25 Marks)

Transfer the questions to your notebook answer the following questions

I- Complete the missing answer on the following:- (10 Marks, 2 Marks each)

1- Based on porosity and permeability of the reservoir rocks. the reservoirs classified into different classes. Mentioned these classes with **discussion**:-

- a-
- b-
- c-
- d-

2- Different methods for petroleum production depending on the conditions of the reservoir and physical properties of the petroleum. Mentioned these methods with discussion:-

- a- b-
- c- d-
- e-

3- Primary migration of hydrocarbon is carried out in four phases. Mentioned these phases with discussion:-

- b- b-
- d- d-

4- Petroleum discovers and production in the last decade were in the Western Desert and off shore Nile delta regions. The source rocks, reservoirs and traps are different in the two regions. -

The source rocks in the western desert are, However, the main reservoir rocks are, and Whereas, the types of the predominant traps, and

In the offshore Nile Delta region, the source rocks, However, the main reservoir rocks are, and

Whereas, the types of the predominant traps , , ,
and

- 5- The LCI and VCI are highly controlled the reservoir quality. These indexes are generally affected by:-
- a-
 - b-
 - c-

II- **Choose the correct answer and comment on your choice with illustration on only six of the following:-** (9 Marks, 1.5 mark each)

- 1- At metagenesis zone of petroleum generation, if the kerogen from type I, the produced hydrocarbon is mainly:-
 - a- Gas
 - b- Oil
 - c- Immature hydrocarbons
- 2- Secondary migration phase which depending on specific gravity of the hydrocarbons is generally carried out in the :-
 - a- Reservoir rocks
 - b- Source rocks
 - c- Migration root
- 3- Most of hydrocarbon occurrences all over the world are generally in:-
 - a- Regions of high tectonic and sedimentation
 - b- Regions of high tectonic and low sedimentation
 - c- Regions of low tectonic and high sedimentation
- 4- Petroleum quality is measured by API%, The Egyptian petroleum especially that occurred in Gulf of Suez region has:-
 - a- High API %
 - b- Low API%
 - c- Moderate API%
- 5- The amount of hydrocarbon generation depends on:-
 - a- Amount of the organic matter in oxidizing conditions
 - b- Amount of organic matter in reduction conditions
 - c- Presence of capillary pressure
- 6- Hydrodynamic traps are generally occurred with:-
 - a- Rechargeable groundwater aquifer with water flow toward the crest of anticline fold
 - b- Highly structures regions with water flow toward
 - c- Thick impermeable sedimentary rocks with water flow

- 7- Gravity method in hydrocarbon exploration is applied to investigate is:-
- a- Major sedimentary basin
 - b- Saturated horizons
 - c- Discriminating gas and oil zones

III- What is the differences with illustration between only three of the following:- (6 marks, 2 marks each)

- 1- Traps associated with syn-rift and post-rift tectonic phases.
- 2- Convention and non-convention sources of hydrocarbon.
- 3- Gravity and magnetic methods in hydrocarbon exploration.
- 4- Gas and oil fields from exploration, generation and production points of view.

Part II (Hydrogeology 25 Marks)

Answer only tow of the following questions:

- 1. Discuss with drawing: (12.5Mark)
 - a. The different types of groundwater aquifers.
 - b. The major and minor dissolved constituents in the groundwater
 - c. The differences between the saturated and unsaturated zones.
- 2. Give an account with drawing on: (12.5Mark)
 - a. Agricultural uses of groundwater.
 - b. Specific yield and retention.
 - c. Water bearing formations.
- 3. Write short notes on the following: (12.5Mark)
 - a. The groundwater aquifer characteristics.
 - b. Biological characters of groundwater.
 - c. The main benefits from a grain size distribution curve in the aquifer material.

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Good Luck



Important
remarks

- No. of pages: 2~ No. of questions: 4

Answer the Following Questions (Total 50 degrees):

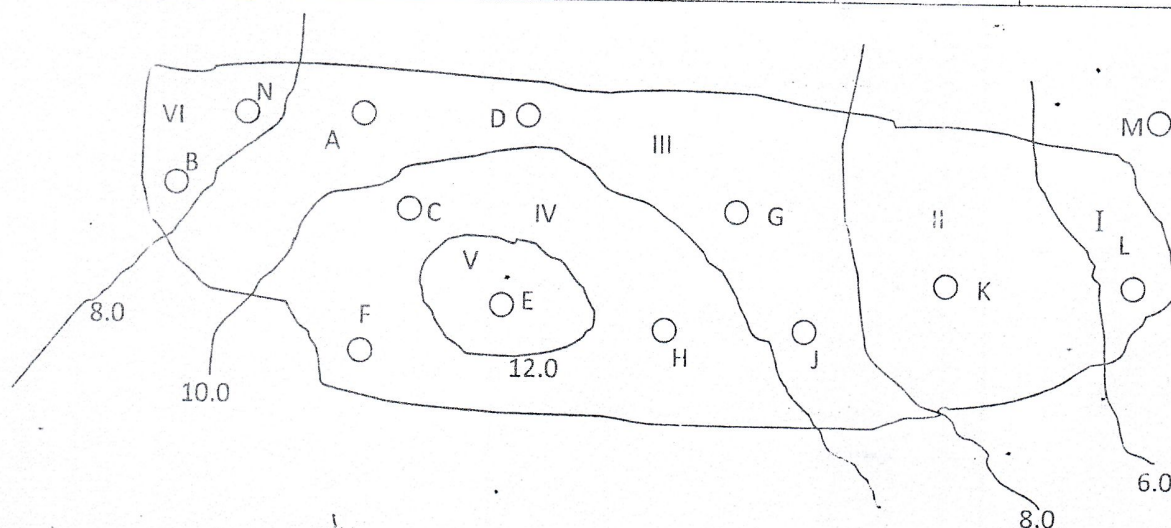
Q1. (15 marks) A small catchment of area 150 ha received a rainfall of 7.0 cm/hr in 90 min duration due to a storm. At the outlet of the catchment, the stream draining the catchment has an initially discharge equal to $1.0 \text{ m}^3/\text{sec}$ before the storm. After the beginning of the storm, the stream discharge is increased to $3.0 \text{ m}^3/\text{sec}$ for 10 hr period. The stream has again the same initially discharge after this period. What is the amount of water losses in centimeters? Also, compute the runoff coefficient.

Q2. (15 marks) Point rainfall due to a storm at several rain gauge stations in a basin are shown in Fig. below. Determine the average depth of rainfall over the basin by two methods.

Station	A	B	C	D	E	F	G	H	J	K	L	M	N
Rainfall (mm)	8.8	7.6	10.8	9.2	13.8	10.4	8.5	10.5	2.5	7.8	5.2	5.6	7.4

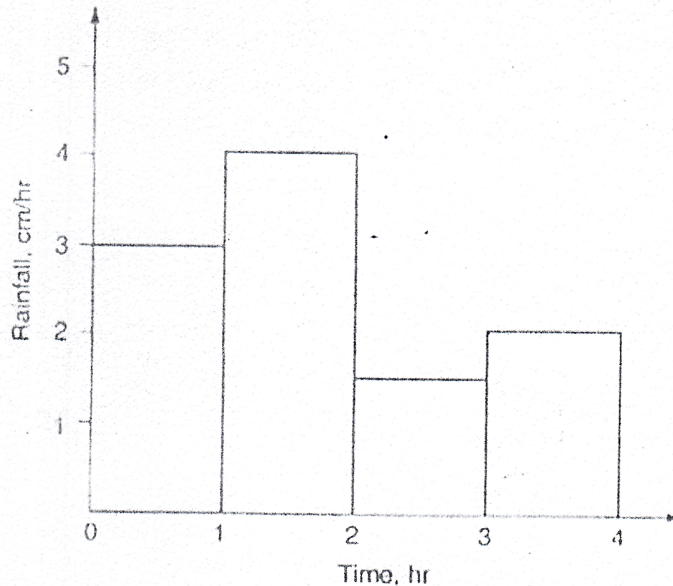
The areas between the isohyets are as follows in Km^2 :

I	II	III	IV	V	VI
410	900	2850	1750	720	550



Q3. (10 marks) The average air temperature for a certain month above a lake surface is 30°C , actual vapor pressure, e_a , is 23.0 mb and the relative humidity is 60%. The average wind speed as measured at a nearby weather station at 20 meters elevation is 10m/s. estimate the average daily evaporation for the same month (assume $a = 0$ and $b = 0.015$). Where $f(u) = a + b U_{20}$.

Q4. (10 marks) A rainfall hyetograph is presented in the shown Figure.



a. The total storm precipitation is most nearly

- 2.0 cm
 - 2.6 cm
 - 4.1 cm
 - 10.5 cm
- b. If Horton's infiltration equation with $f_o = 2.0$ cm/hr, $f_c = 0.8$ cm/hr, and $k = 0.5$ /hr were applied to the storm described in above figure, the net runoff would be most nearly
- 2.0 cm
 - 2.6 cm
 - 4.1 cm
 - 10.5 cm
- c. If the net runoff from the storm were 4.0 cm, the ϕ -index that correctly describes the infiltrated amount would be nearest to
- 1.0 cm
 - 1.5 cm
 - 1.7 cm
 - 2.3 cm

Answer FOUR questions only of the following (50M)

Q1 (12.5 M)

Give short notes about the following?

- | | |
|----------------------------------|------------------------------------|
| i- Inversion points | ii- Reflectance of opaque minerals |
| iii- Kalb hardness determination | iv- Twinning in ores |

Q2 (12.5 M)

- i- Compare between regional zoning and district zoning of ores?
- ii- Explain the applications of iron content of sphalerite in ore microscopy?

Q3 (12.5 M)

- i- Write on the anisotropy and polarization colors of ore minerals?
- ii- Explain two methods of geobarometry estimation?

Q4 (12.5 M)

- i- Mineral textures and color changes of minerals are used to indicate relative temperatures of a mineral or a mineral assemblage. Comment?
- ii- Discuss the importance of reflection pleochroism of opaque minerals with examples?

Q5 (12.5 M)

- i- Write on cleavage and parting of opaque minerals under reflected light microscope?
- ii- Color is an extremely important property for the recognition of ore minerals in reflected light although it is not always completely diagnostic. Comment?



2018-2019 First Semester, Final Examination for 4th Level Students

On: Georadar and Paleomagnetism (453-G)

December 2018

Time allowed: 2 hours

PART II: GEORADAR (Total marks: 25)

First Question: Answer ***ONLY FOUR*** of the following items and illustrate your answer by suitable drawings when it is possible: (16 marks)

1. There are three main modes of deployment of radar systems. Describe these different modes of GPR data acquisition.
2. The GPR image shows buried/anomalous objects in a hyperbolic shape. List briefly the different reasons that control the size of the hyperbolas.
3. Each different geophysical method depends for its success on one physical property of the strata and each has its own special possibilities and limitations which must be clearly understood. List briefly the advantages and limitations of the GPR.
4. Different factors may result in a decrease in signal strength as radiowaves propagate through subsurface media. Describe briefly the different sources of radiowave energy loss and attenuation throughout the subsurface media.
5. Ground penetrating radar is an important geophysical prospecting method used to provide high resolution images of the subsurface. List four different applications of the GPR method.

Second Question: Fill in the gaps in the following sentences: (9 marks)

1. Digital GPR systems have the function of stacking a limited number of adjacent traces in order to improve the ratio.
2. In each of the wide-angle reflection and refraction (WARR) or common-midpoint (CMP) configurations, three types of waves may be identified. They are,, and
3. The speed of radar waves is dependent on the and as well as on
4. For applications, where depth penetration tends to be more important than very fine resolution, antenna with frequencies less than or equal to 500 MHz are usually used, while for applications, antenna with frequencies of 500 MHz and greater are used.

Best of Luck,,,

Dr. Rashad Sawires

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

Assiut University
Faculty of science
Geology Department

إمتحان المستوى الرابع (شعبتي الجيولوجيا والجيوفيزياء)

مقرر 415 ج (جيولوجية مصر)

Course 415 G (Geology of Egypt)

الزمن : ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2019

الإمتحان مكون من أربعة صفحات

Part I (PreCambrian) 10 Marks

Answer the following question. (10 Marks)

Question 1 (A-B):

1-A: Discuss in detail the different metamorphic types reported from the Egyptian basement. (5 Marks)

1-B: From the field trip held in November 2018 to observe and record the geological features of the lithological units of basement complex. Describe the main lithological units of the Fawakheir ophiolite sequence.

Part II (Cambrian to L. Cretaceous) 10 Marks

Answer the following question. (10 Marks)

Question 2 (A-C) (10 Marks):

2-A: In a geologic time scale illustrate the Paleozoic rock units in the North Western Desert.

2-B: Compare in a geologic time scale between the Early and Late Cretaceous rock units in north and south Sinai.

2-C: Define the geologic age and the geographic location of the following rock units:

Six Hills - Maghrabi – Lakia – Tadarat – Safa – Tamsah - Wata – Abu Thora – Naqus – Abu Ballas

Part III (Upper Cretaceous to Quaternary) 20 Marks

Answer Only TWO Questions of the following:

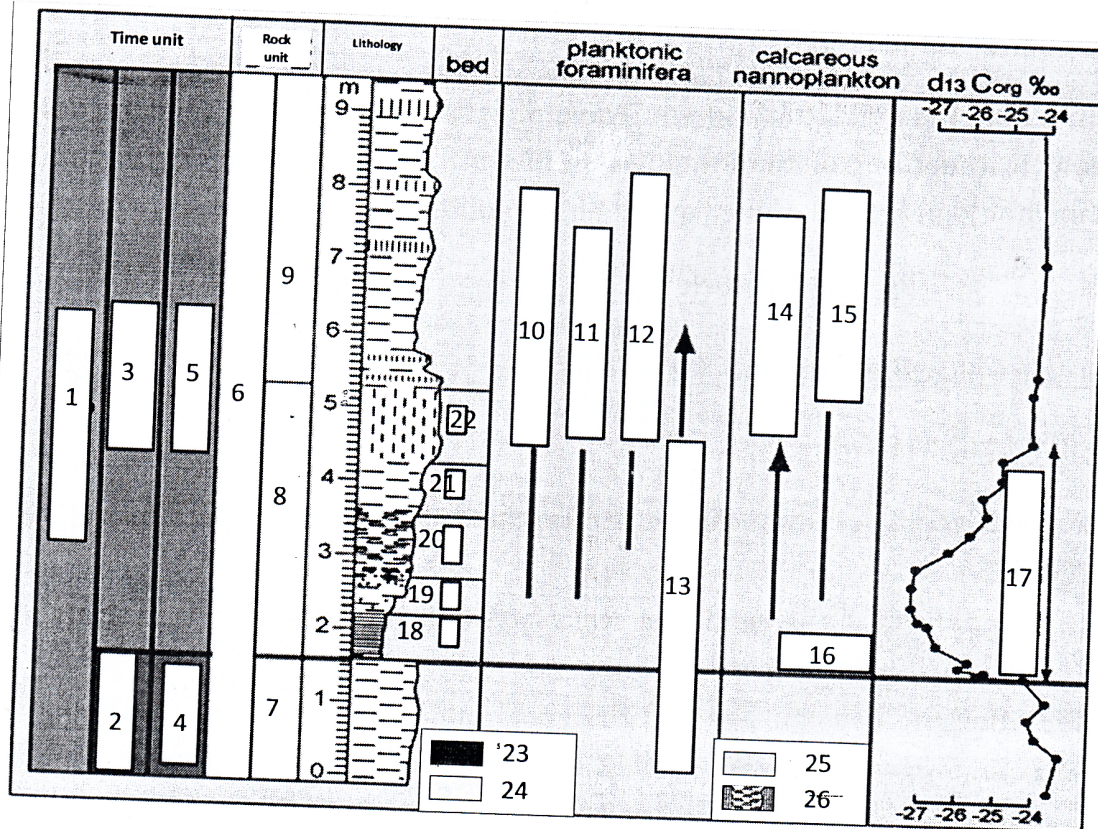
Question 3(A-B):

3-A: Compare and correlate the Middle –Upper Eocene rock units and their equivalent time units in Fayoum and Nile Valley (5 Marks)

3-B: Identify in a time table the different rock units of the Miocene Series in the Gulf of Suez and their equivalent time units (5 Marks)

Question 4(A &B):

4-A: If you know in the following table that No. 2 is the Paleocene Epoch and No. 3 is the Eocene Epoch in the GSSP of the P/E boundary, please identify the type locality of this boundary, and fill the remaining white spaces from 1 to 26 in the given table by appropriate litho- , chemo- and chronostratigraphic terms as well as characteristic bioevents which mark the this boundary.

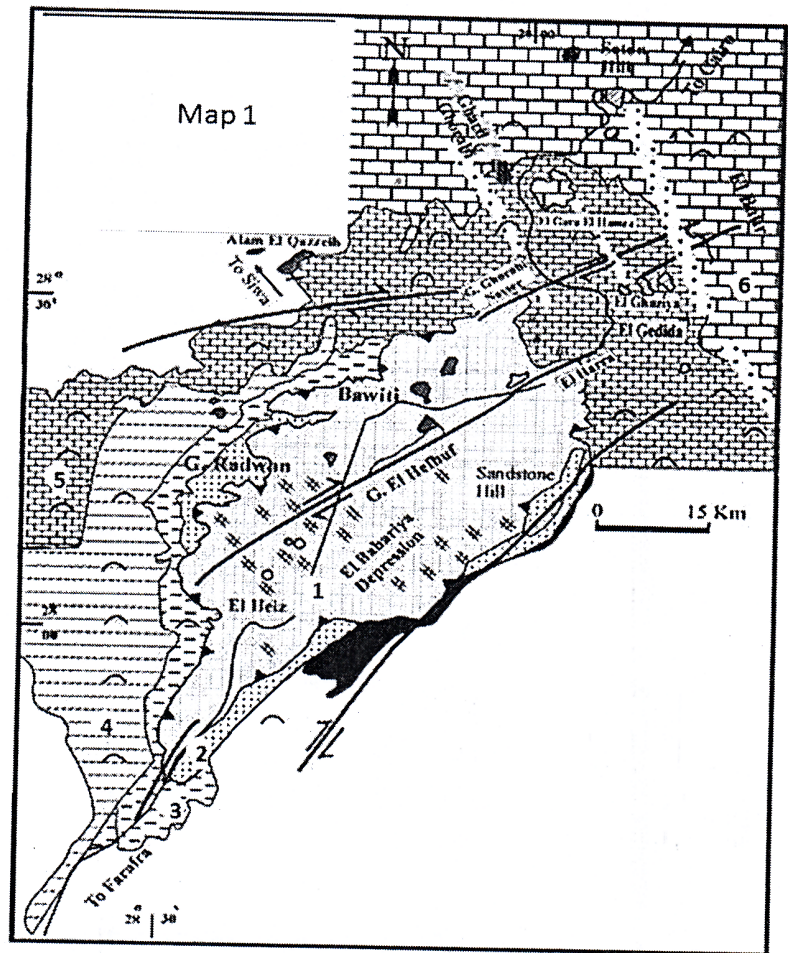


14-B: Look to the adjacent map (Map 1) and define:

- i- The name of district
- ii- The names of rock units and their equivalent ages which are given from 1 to 6.

Question 5 (A- B):

5-A: Select from list B the equivalent rock units to those of List A and rearrange the units of list A in stratigraphic order according to their age. (5 Marks)



List A

Kiseiba Formation
Belayim Formation
Garra Formation
Dabaa Formation
Birket Qarun Formation
Mamura Formation
Ryan Formation
Qawasim Formtion
Bir El Temsah Formation
Kareem Formation

List B

Mokattam Formation
Rudeis Formation
Um Mahara Formation
Quseir-Duwi-Dakhla
Syatin Formation
Tarawan Formation-Hanadi Member
Observatory Formation
El Qurn-Wadi Garawi Formations
Belayim –South Gharib Formations
Geisum Formation
Qasr El Sagha – Qattrani Formations
Darat-Khaboba Formations

5-B: Construct the expected subsurface stratigraphic sequence which is supposed to be logged in wells drilled at the following localities:

- I-The western plateau of Assiut
- II-The Aswan district
- III-The northern Red Sea (offshore)

Part IV (Structural Framework, Paleogeography and Paleoenvironment)
(10 Marks)

Answer the following question: (10 Marks)

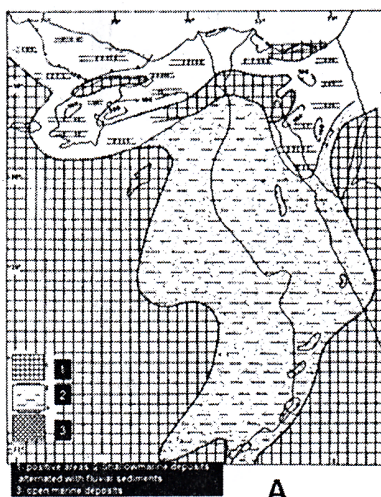
Question 6 (A-C)

6-A: Write on One of the following (3.5 Marks)

- 1-Display the main field evidences used to distinguish G1, G2, G3 granite groups exposed in the Egyptian basement.
- 2-List the main differences between the Island arc metavolcanics and the Dokhan volcanics

6-B: Discuss the occurrence of Jurassic strata in Egypt. (2.5 Marks)

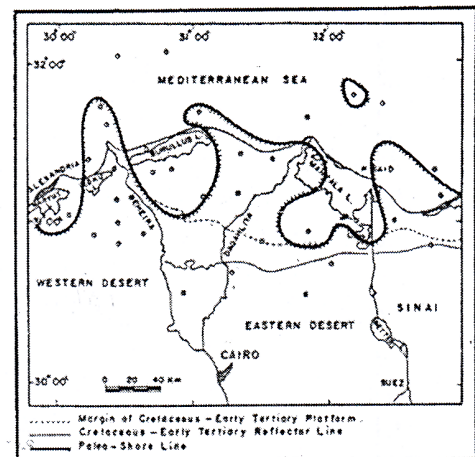
6-C: Look to the following paleogeographic maps and define the Period, Epoch and Absolute age during which the Egyptian land was submerged in a way such as in figures A, B, C, D and E. (4.0 Marks)



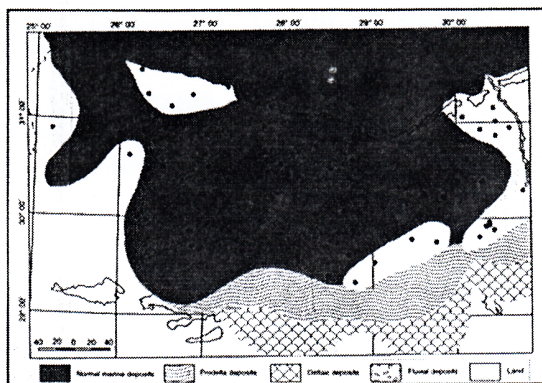
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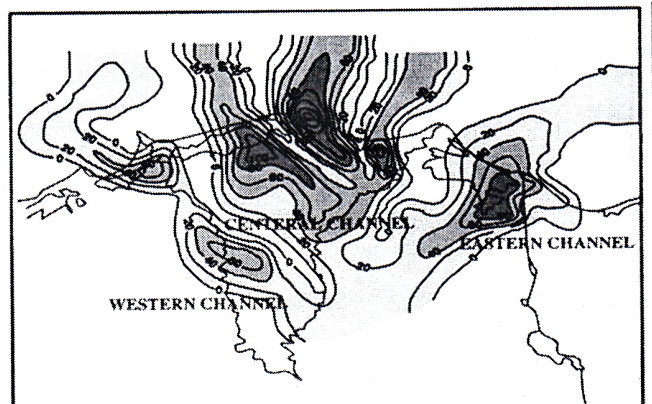
B



C



D



E

Good Luck.

Prof. Khaled Ouda; Prof. Ali Khudeir; Prof. Nageh Obaidalla

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

Assiut University
Faculty of Science
Geology Department

إمتحان المستوى الرابع (شعبة جيولوجيا البترول)
مقرر 405 ج ب (جيولوجية مصر والإحتمالات البترولية)

Course 405 PG (Geology of Egypt)

الزمن : ساعتان

الدرجة: 50 درجة

دور يناير 2019

الإمتحان فى أربع صفحات

Part I (PreCambrian) 10 Markes

Answer the following question. (10 Marks)

Question 1 (A & B):

Write on the following items:

1-A: The main contact types of the Hammamat sediments exposed at Wadi Hammamat. (5 Marks)

1-B: The general field and petrographic features of the syn-to late orogenic granite outcrops exposed in the Eastern Desert. (5 Marks)

Part II (Cambrian to L. Cretaceous) 10 Marks

Answer the following question. (10 Marks)

Question 2 (A-B):

2- A) Write briefly on the Paleozoic outcrops in Egypt. (3 Marks)

2-B) Give reasons for ONLY FOUR of the following statements: (4 Marks)

- i- The missing of Triassic and Early Jurassic rocks at north Western Desert.
- ii- The variation in the thickness of the Paleozoic sediments in Egypt.
- iii- The occurrence of thick Paleozoic sediments at north Western Desert.
- iv- The difficulty in the determining the geologic age of the Paleozoic rocks.
- v- The restricted occurrence of marine Triassic rocks in the north eastern part of Egypt.

C) Discuss the relationship between the following rock units: (3 Marks)

i- Halal and Raha

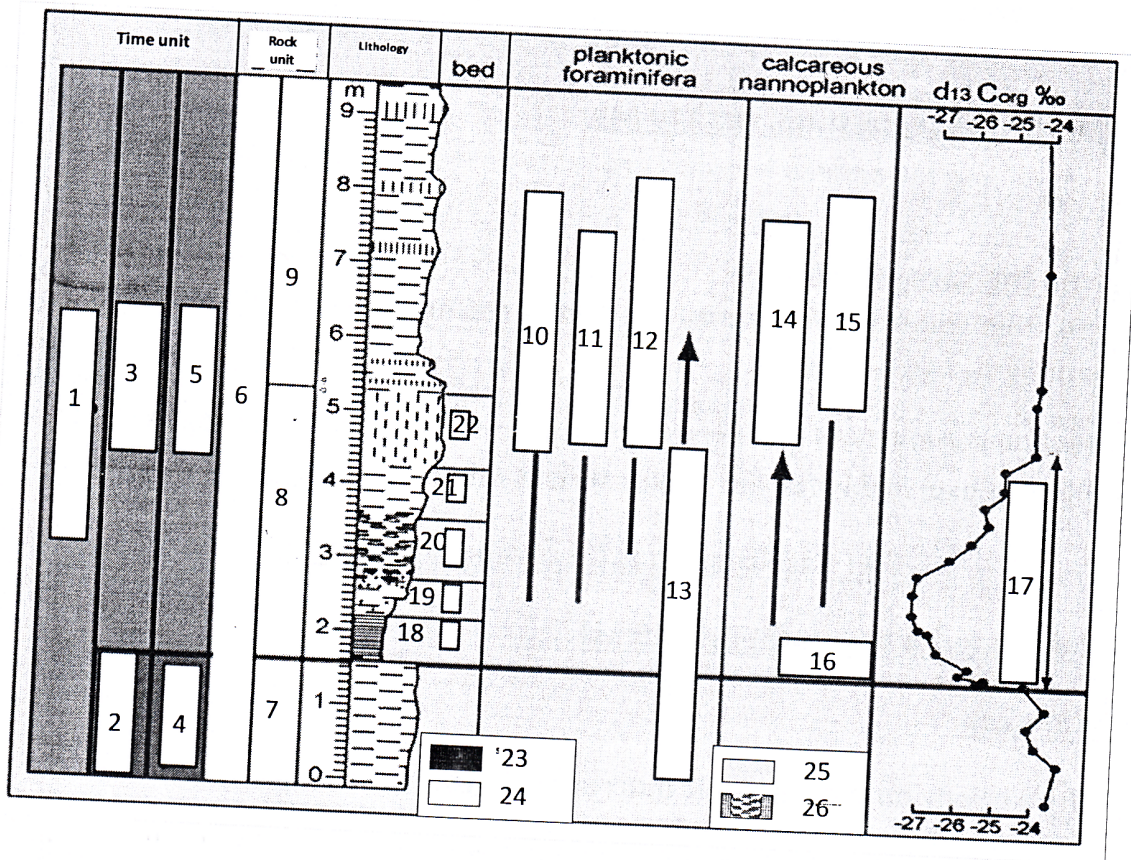
ii- Kharita and Bahariya

Part III (Upper Cretaceous to Quaternary) 20 Marks

Answer Only TWO Questions of the following:

Question 3: (10 Marks)

If you know in the following table that No. 2 is the Paleocene Epoch and No. 3 is the Eocene Epoch in the GSSP of the P/E boundary, please identify the type locality of this boundary, and fill the remaining white spaces from 1 to 26 in the given table by appropriate litho- , chemo- and chronostratigraphic terms as well as characteristic bioevents which mark the this boundary.



Question 4: (10 Marks)

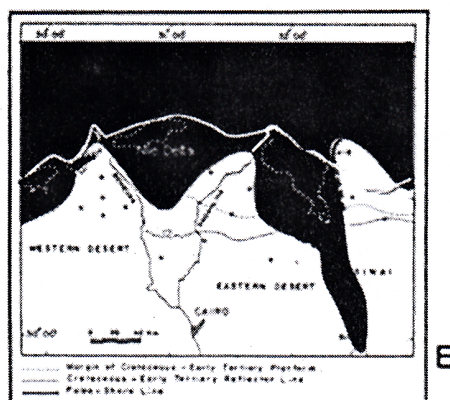
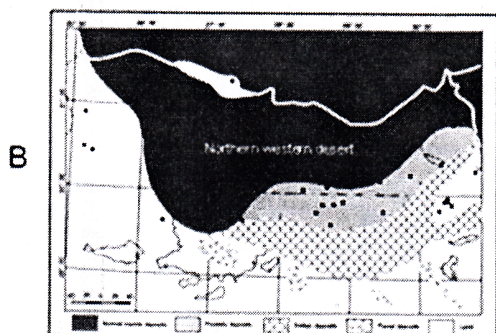
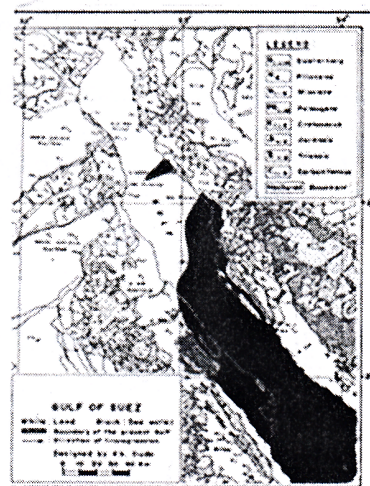
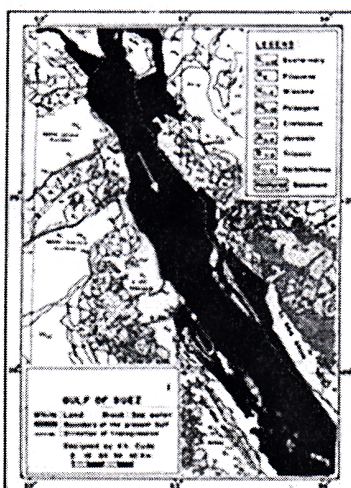
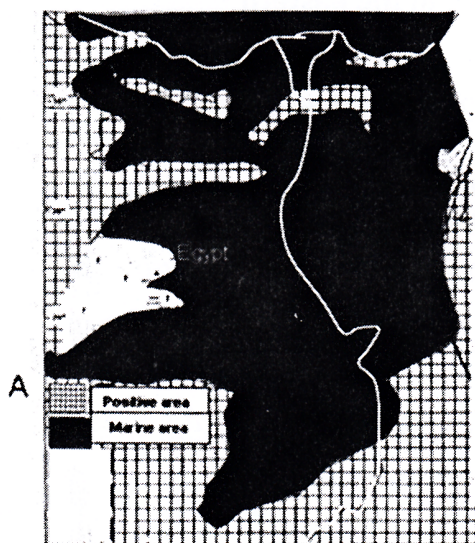
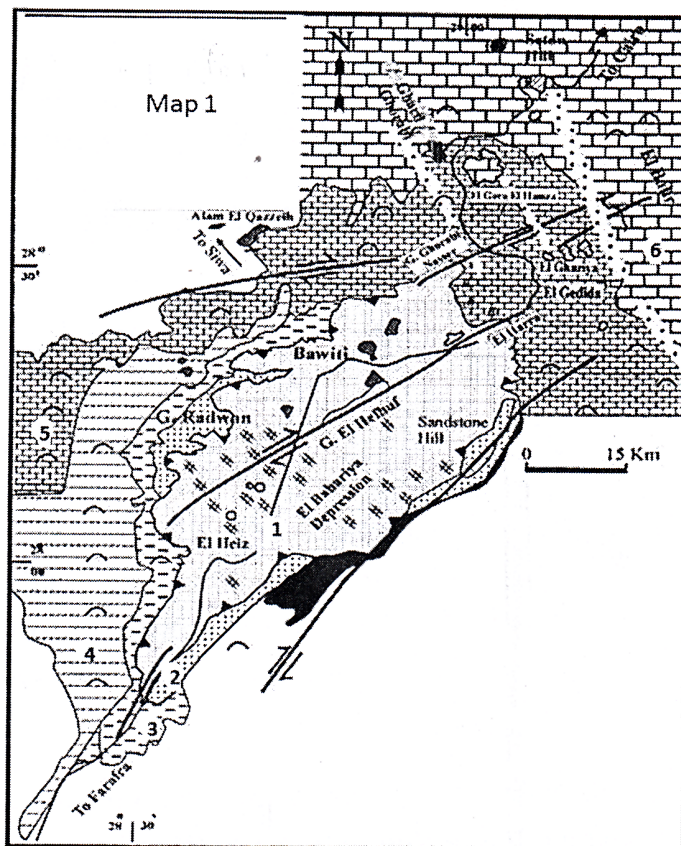
Define stratigraphically in a time table the different rock units of the Oligocene-Miocene Series in the Gulf of Suez region and correlate them with those of the northern onshore of the Red Sea coast. (10 Marks).

Question 5 (A&B): (10 Marks)

5-A: Look to the adjacent map (Map 1) and define:

- The name of district (1 mark)
- The names of rock units and their equivalent ages which are given from 1 to 6. (4 Marks)

5B: Look to the following paleogeographic maps and define the Period, Epoch and Absolute age during which the Egyptian land was submerged in a way such as in figures A, B, C, D and E (5 Marks)



Part IV (Oil and Gas Potentialities in Egypt) 10 Marks

Answer the following question: (10 Marks)

Question 6 (A&B):

6-A: Give short notes about the following items:

- i- The difference between crude oil, natural gas and condensates
- ii- The quantity of Production of crude oil and condensates in Egypt during 2008-2009
- iii- The volume of production of natural gas in Egypt during 2008-2009
- iv- The total world reserves of crude oil and natural gas at the beginning of 2008; how much of these reserves occur in the Middle east

6-B: Define the source rocks, reservoirs and estimates of volumes of undiscovered oil and gas in the Nile Delta Basin (Nile Cone and Nile Margin) in the eastern Mediterranean as given by the USGS.

Good Luck.

Prof. Khaled Ouda; Prof. Ali Khudeir; Prof. Nageh Obaidalla

Credit hour system - First semester - Final Examination* 17/1/2019

Geology and Geophysics Programs
Engineering Geology and Mining Geology (G 407)

Fourth Level

Allowed time 2 hour

(ملحوظة الامتحان فى صفحتين)

Part (1) Engineering Geology Exam (25 M)

Answer Three Only of the following questions

Q1(7.5 M)

- Compare between cohesion and compressibility as important engineering properties of soil?
- Explain the effects of geological structures to tunnel excavation?

Q2 (7.5 M)

- Mention the factors affecting slope stability?
- Explain the professional responsibilities of the engineering geologist?

Q3 (7.5 M)

- Explain the factors affecting excavation of rocks ?
- What is the role of engineering geologist in construction of tunnels?

Q4 (7.5 M)

- Mention the preliminary studies at the reservoir area and dam site?
- Define the soil (Engineering) and explain the importance of the gradation in grain size in high way aggregates?

Part (2) Mining Geology Exam (25 M)

Answer the following questions

- (1)- A particular sampling position on the drift of a gold vein consists of 5 different sections. The sections have the following densities: 3.5, 2.6, 3.8, 2.4 and 2.5. The sampling width and assay values of the sections are given in the following table.

(10Marks)

أنظر خلف الورقة

Section	Width, (w), inch	Assay, %	Density
A	12	25	3.5
B	10	20	2.6
C	8	45	3.8
D	15	12	2.4
E	11	15	2.5

Find:

- i-The average assay in this position
- ii-The width of the vein at that sampling position.
- iii-The average density

B- Define the following:

(5 Marks)

- i- Channel sampling
- ii- Chip sampling
- iii- Sampling drill hole
- iv- Grab sampling
- v- Point sampling

- 2- A- Mention the factors that determine the economic feasibility of the ore ?(5 Marks)
- B- Mention the importance of mining development?(5 Marks)

إنتهت الأسئلة وبالتوفيق

أ.د/ جمال يحيى - قسم هندسة التعدين والفلات

أ.د/ جلال حامد الحباك - قسم الجيولوجيا



**Fourth Level Examination in
Sedimentary Basins & Sequence stratigraphy (G420)
For Geology and Geophysics students**

Time: Two Hours

(50 degree)

9-Janu. 2019

PART-I: Sedimentary Basins (25 degree)

Answer the following question:

- 1- a. Mention the sedimentary basins related to subduction? (5marks)
b. Define the term rift basin? (4 marks)

Answer two questions only from the following:

- 2- a. Choose the correct answer (4marks)
- Pull-apart basins are Strike –slip basins
- Pull-apart are caused by plate convergence
b. What is the economic significance of Pull-apart? (4marks)
- 3- a. Mention the basins-related collision. (4marks)
b. Fore arc basins are formed in: (4marks)
- Subduction-related basins
- Divergent-related basins
- Collision-related basins
- 4- a. Choose the correct answer
The passive margins are caused by: (4marks)
- Plate divergence
- Plate convergence
b. Describe briefly the sedimentary fill of rift basins (4marks)

PART-II: Sequence Stratigraphy (25 degree)

I-Write on, and/or differentiate between one only of the following: (6marks)

- 1- Define the difference between Type 1 and Type 2 sequence boundary.
2- How can relative sea level rise and water depth decrease

II-Answer the following questions (*Illustrate your answer by diagrams*):

3. A Sequence Boundary within a siliciclastic depositional sequence can be identified by (6marks)

.....
.....
.....
.....
.....
.....
.....
.....

4. Marine Flooding Surfaces (MFS) can be described as transgressive surfaces. (2marks)

- a. True
b. False

Explain why?
.....

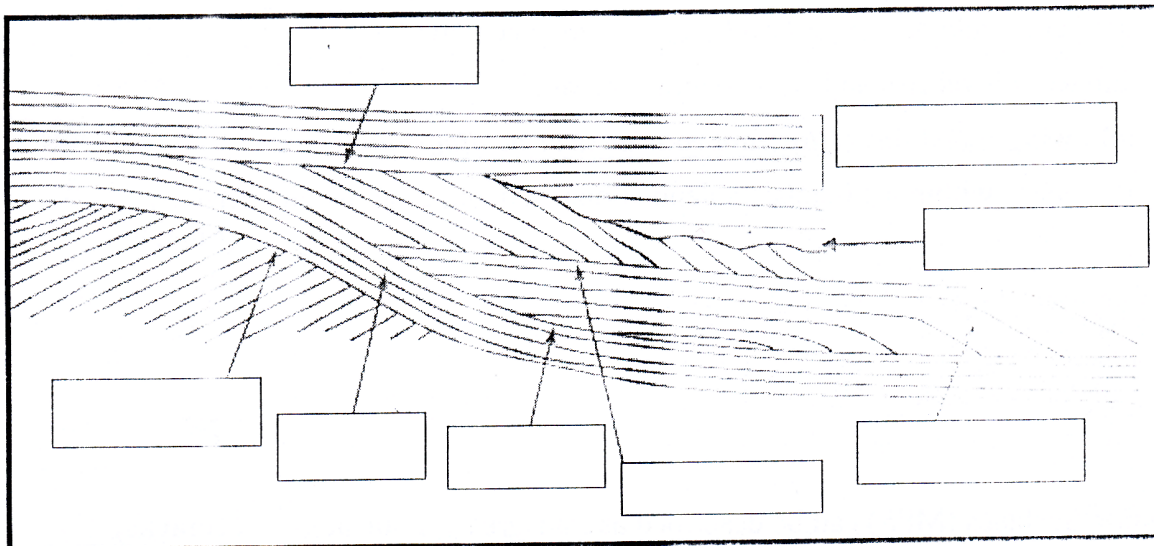
5. What does the parasequences represents in a stratigraphic section? (2marks)
- Transgression
 - Regression
 - Increase in accommodation space
 - Rising sea level
 - Progradation

Explain that.

6- Matching questions (5marks)

1) Marine Flooding Surface	a) Deposited by a relatively slow rise in sea level and the filling of incised valleys.
2) Incised Valley Fill	b) A type of unconformity in which younger sediments rest upon the eroded surface of tilted or folded older rocks.
3) Angular Unconformity	c) Marine beds immediately overlying non-marine beds. may contain clasts from underlying unit. may have mixed faunal assemblages
4) exposure surfaces	d) solution vugs, internal sediment, regolith, paleosols. solution pipes, erosional base, terra rosa, paleokarst
5) Transgressive Lags	e) A surface that separates younger from older strata. across which there is evidence of an abrupt increase in water depth

- 7- Identify the different types of seismic reflections and terminations given in the following figure (fill the rectangles) (4marks)



-----GOOD LUCK-----

Prof. Dr. Mohamed Ahmed Soliman

Prof. Dr. Ahmed-Reda El Younsy

Final Exam Geochemistry G433

Assiut University
Faculty of Science
Geology Department

January 20th, 2019

Time allowed: 60 minutes

No. of Pages 5

Total points 25

Twenty eight questions - Each question worth one mark

Please answer on the same sheet

Please answer twenty five questions only

Multiple Choice

1) Uranium has

- a) one isotope
- b) two isotopes
- c) three isotopes
- d) four isotopes

2) Natural Uranium minerals are

- a) oxides
- b) silicates
- c) phosphates
- d) all the above

3) What are the geologic types of Uranium deposits in Egypt?

4) What are the geochemical methods used for uranium exploration?

5) What is the characteristics of the " open pit mining"

6) What is meant by "the Milling Process" in Uranium Mining

7) Strontium in rocks are substituted in

- a) potash feldspar
- b) plagioclase
- c) olivine
- d) pyroxene

8) Scandium and chromium showed preference in substituting for

Final Exam Geochemistry G433

- a) pyroxene then olivine
- b) olivine then pyroxene
- 9) Europium anomaly in rocks arises when Plagioclase is a**
 - a) fractionating phenocryst
 - b) residual solid in source
 - c) both the above
 - d) none of the above
- 10) High field-strength elements that partition into Ti-rich phases (titanite, Ti-amphibole, Fe-Ti oxides. Typically low concentrations in subduction-related melts**
This refers to
 - a) Ni, Co, Cr
 - b) REE
 - c) Y
 - d) Nb, Ta
 - e) Sc
- 11) How many isotopes strontium have? Mention them -**
- 12) What is the oldest age any isotope can give?**
- 13) What is the definition of an ore deposit?**
- 14) Give examples for magmatic ore deposits.**
- 15) What is the environment where gypsum and halite were deposited?**
- 16) What is a placer deposit? Give examples**
- 17) What do you know about the chemical classification of rocks?**
- 18) Write down the eleven major oxides reported in weight percent for rocks.**

Final Exam Geochemistry G433

19) Ultramafic → Mafic → Intermediate → Felsic .

Comment on the above using the silicate chemistry in terms of percent

20) What is the mineral group after amphibole in Bowen reaction series?

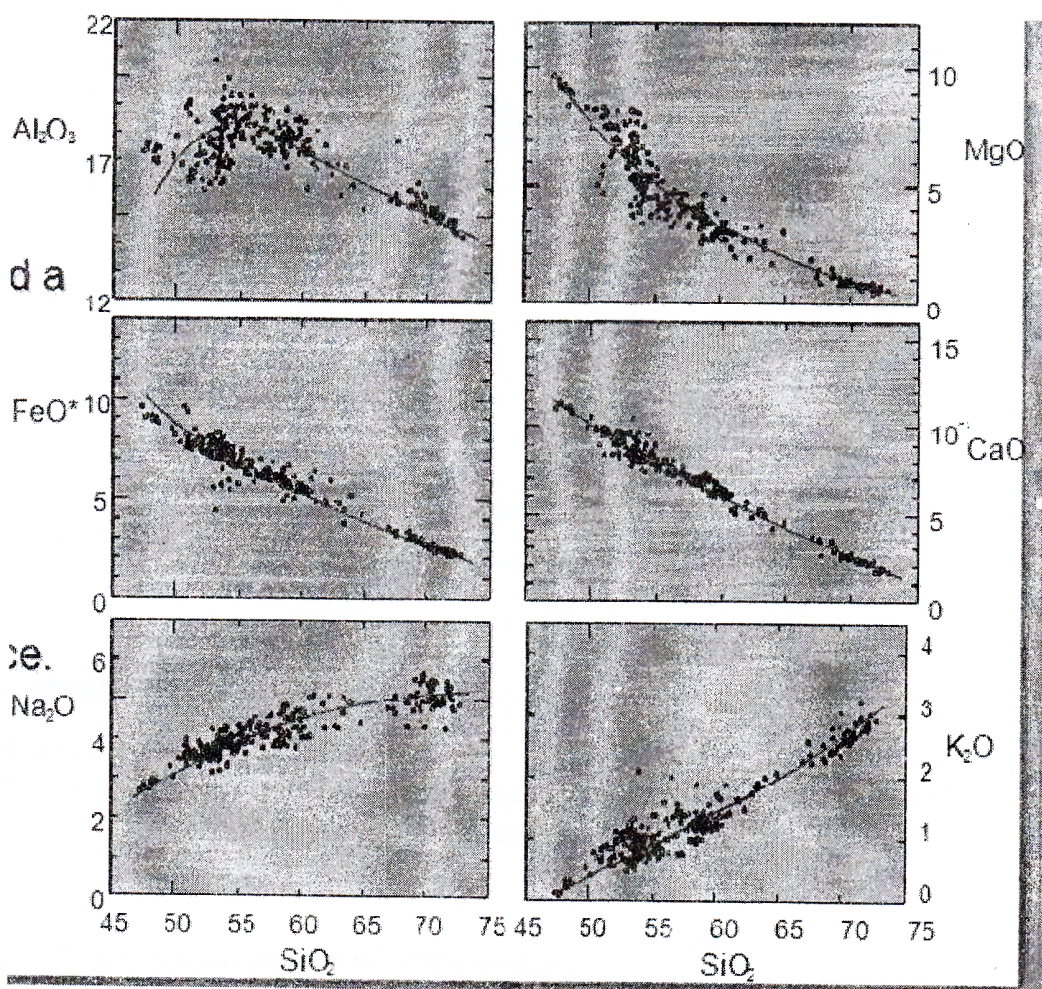
21) Olivine is an undersaturated mineral.

False / True

22) From the given below diagram

What is the trend of the major oxides with silica ?

Which oxides have similar trend - Explain

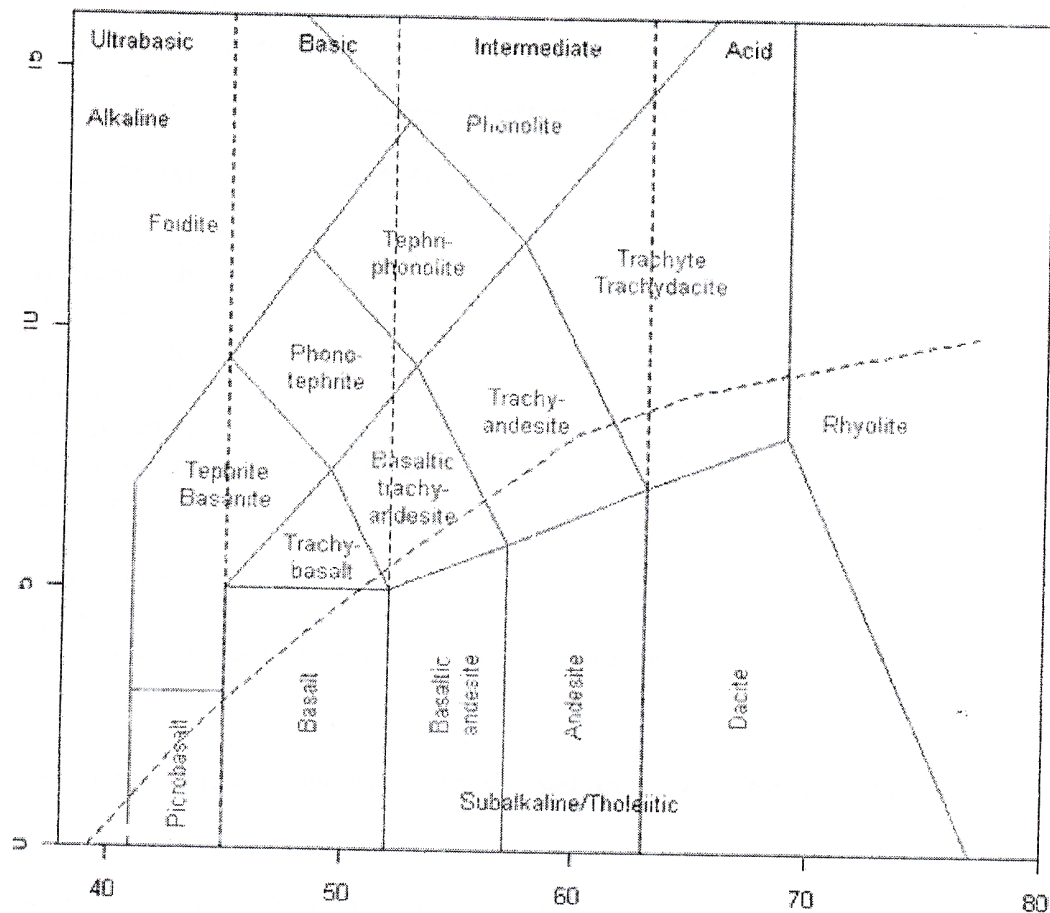


23) To obtain a genetic link between analyses of a given suite of samples fractionation indices were developed. These indices attempt to the results of chemical analyses from an individual igneous suite into their correct evolutionary order. These indices are not realistic but several come close to such an order. This refers to :

Final Exam Geochemistry G433

- a) MgO Index
- b) Mg-Fe Ratios
- c) Solidification Index
- d) Differentiation Index
- e) all the above

24) What is the label of the X and Y axes for the plot given below



25) Which diagram allows to:

- See many elements at a time
- Compare elements with large differences of absolute abundance (log scale!)
- To some degree, make petrogenetic interpretations

26) What is the advantages of modal analysis?

27) Give examples for the Large-ion lithophile elements (LILE's)

28) Give examples for the High-field strength elements (HFSE's)

Geology Department Faculty of Sciences Assiut University Fourth level		Second Term Examination Ore forming processes (438 G) Sept., 2018 Two Hours
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Ore forming processes (438g)

Answer the following questions :

1. Complete the following sentences by the name of mineral deposit process: (10 pts)

1. Leaching of soluble elements leaving concentrations of insoluble elements is named.....
2. Separation of Cr-ore from the magma is named.....
3. Leaching of certain elements from the upper part of a mineral deposit and their reprecipitation at depth produce higher concentration is named.....
4. Settling out of Cu-Ni sulphid melts from magma with decreasing temperature is named.....
5. Ore deposits formed by replacement of wall rocks adjacent to an intrusive body is named
6. Sn-W, Beryl deposits associated with coarse grained felsic rocks is named.....
7. Minerals concentrated by flowing surface water and depositing high density minerals either in stream or near costlines is named.....
8. Stratiform accumulations of sulfide minerals that precipitate from hydrothermal fluids in the seafloor but also land-based volcanic is named.....
9. Ore minerals are dominantly structurally controlled and which are spatially and genetically related to felsic to intermediate intrusions is named.....
10. Cassiterite and wolframite ores which can be formed by hydrothermal processes at high temperature is named.....

2. Identify the following processes and mention ore deposits related to each process
 Mechanical accumulation-liquid immiscibility- hydrothermal deposit- Skarn process-
 secondary supergene enrichment (5 pts)

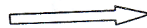
3. Mention why S-saturation caused in a basic magma due to fractional crystallization of olivine, pyroxene, chromite and magnetite? (5 pts)
- 4.
5. Write briefly about the sources of Metals and Sulphur in Porphyry Deposits (5 pts)
- 6.
7. Compare between VMS and porphyry type deposits from the following points: (5pts)
 rock association, Ore deposits shape, ore forming processes, types of alterations
8. Complete the following reactions in oxidation and supergene enrichments zones

Pyrite + water + O	→
Element + O	→
Sulphide + water	→

Sulphide + acid



Sulphate + sulphide



(10 ptss)

7. Match the ore metals in (A) with the related ore forming processes in (B) (5 pts)

A	B
Chromite	hydrothermal
Cu-Au	sedimentary (residual)
Nb-Ta	magmatic fractionation
Bauxite	metamorphic
Skarn type (W-Mo)	pegmatitic

8. Discuss briefly the main methods by which PGE transfer from the mantle in to the crust. (5pts)

Best wishes
Mohamed Abdel-Moneim

جامعة اسيوط
كلية العلوم- قسم الجيولوجيا
امتحان مادة الجيولوجيا الاقتصادية (434ج)
(الترم الصيفي) 2018/2017
المستوى الرابع (جيولوجيا)
الزمن ساعتان

Answer FOUR questions only of the following (50M)

Q1 (12.5 M)

Define the following?

- i- Mineral resources
- ii- Undiscovered resources
- iii- Stratabound deposits
- iv- Gangue mineral

Q2 (12.5 M)

- i- How are the reserves for a specific mineral increased?
- ii- Compare between the metasomatic and hydrothermal mineral deposits?

Q3 (12.5 M)

- i- Mention the common types and properties of asbestos?
- ii- Discuss the formation of massive sulfide deposits and copper-nickel-sulfide association?

Q4 (12.5 M)

- i- Partial melting and fractional crystallization are two ways of separating some minerals from other. Comment?
- ii- Explain the meaning of geochemical traps in the formation of ore deposits?

Q5 (12.5 M)

- i- Draw simplified sketch illustrating the relation of mineral deposits and plate tectonics?
- ii- Compare between placers deposits and residual mineral deposits with examples?

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