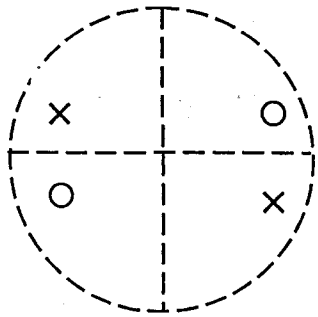
Geology Department – Students of Level Two – January 2017
Course No. (G233) – Total marks (50) – Time allowed: 2 Hours

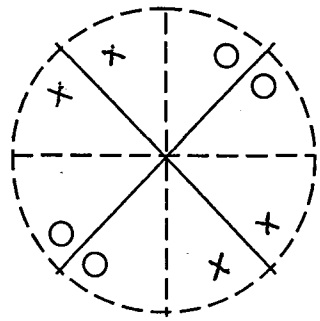
Answer the following questions:

1) Define **ONLY 5** of the following: (10 Marks)
Polar axis – Enantiomorphism – Dome – Open Form –
First order Prism – Sphenoid – General Form

2) Write the Hermann-Maugin (HM) symbol for each stereogram; write the name of the Form and its Millers indices: (15 Marks)



A



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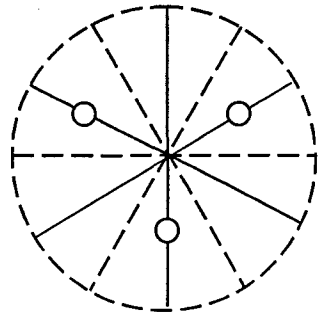

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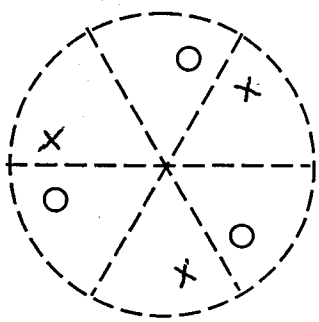

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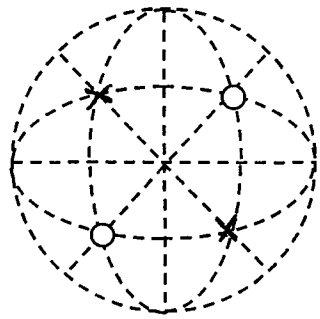

E

3) Draw Stereograms for **ONLY 5** of the following Forms and write their names: (25 Marks)

{1 0 $\bar{1}$ 1} in class 3 2	{2 1 0} in class 2 3
{2 0 1} in class mm	{2 1 $\bar{3}$ 1} in class $\bar{6}$ m 2
{2 1 0} in class $\bar{4}$	{2 1 1} in class m 3
{2 1 $\bar{3}$ 1} in class 3m	{2 0 1} in class 4 m m

Good luck *Prof. Dr/ Wagih Bishara*

يتم الاختبار الشفهى أيام ١/١٧ - ١/١٨ - ١/١٩ من الساعة العاشرة والنصف صباحا

3- Fresh water Spongia is restricted to Triassic Epoch ..... ( )

4- Centrales Diatoms dominate non-marine environments which ranging from Cretaceous to Recent ..... ( )

5- Calcareous nannoplankton is typically thrives in upwelling zones ..... ( )

Fourth question (10 marks).

Explain Four only from the following expression.

1- Calcium Carbonate Compensation Depth

2- Dimorphism in foraminifera

3- Diatomaceous sediments.

4- Types of dentition in Bivalve (with drawing)

5- Coccosphere

Fifth question (10 marks)

Write on Four only from the following.

1- Effect of salinity on foraminiferal test.

2- Bivalvia wall structure.

3- Paleozoic index fossils (give an examples).

4- Ecology and applications of Diatom.

5- Advantages and disadvantages of coccoliths

Sixth question (5 marks).

Choose the correct answer:

1- Microgranular foraminiferal wall structure has firstly evolved during .....

a. Mesozoic b. Paleozoic c. Cenozic

2- Fasciculithaceae is an important group which belonging to .....

a. Holoococcoliths b. Nannolith c. Heterococcoliths

3- Heteractinellida sponge ranging from .....

a. Cambrian to Carboniferous b. Triassic to Cretaceous c. Ordovician to Silurian

4- Coccolithophore is an expression to describe..... nannoplankton.

a. Living b. Extinct

5- Hydrozoa has a skeleton made up of calcium carbonate so, its fossil remains are abundant from Cambrian to Recent.

a. True b. False

Good Luck,,

Dr. Amr Abdel Sabour

14. Which of the following can trigger a landslide?

a. An earthquake
b. A heavy rainstorm
c. Removal of material from the base of a slope
d. All of the above

15. During an earthquake, water-saturated sand can behave like a liquid, a process called .....

a. Slurrification
b. Solifluction
c. Liquefaction
d. Unconsolidation

Second Question: Answer ONLY TWO from the following: **(10 Marks)**

1. More than hundred people died and many injured during a horrible landslide tragedy happened on September 6, 2008, at El-Deweika, Cairo. It is required to give short notes about: a) the main causes of mass movements in general, and b) the responsible reasons of Cairo rockfall in particular. **(5 Marks)**

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2. Egypt has been suffering from severe water scarcity in recent years. The River Nile is the backbone of Egypt's industrial and agricultural sector and is the primary source of drinking water for the population. Write short notes about: a) The main fresh-water resources in Egypt, b) How could water resources be developed sustainably? **(5 Marks)**

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5. Scarps associated with faults are: *(3 Marks)*

a- ..... which was originally produced by .....

b- ..... which was originally produced by.....

It may be ..... or .....

6. Inversion of topography means either: *(3 Marks)*

A- .....,

Such as; 1) ..... *,2)* ..... *and*

B- .....,

Such as; 1) ..... *,2)* .....

7. Complexity of geomorphic evolution is most, common than simplicity; therefore landscapes can be grouped into five major categories: *(1 Mark)*

a) ..... *b)* .....

c) ..... *d)* .....

8. Base level is: *(1 Mark)*

a. the level associated with the base of a river channel
b. the normal elevation of a reservoir
c. the level above which flood waters will not rise
d. the level below which streams will not erode

9. The most common topographic forms in ..... terrains are Lapies and ..... *(1 Mark)*

10. A mesa is..... *(1 Mark)*

a. Flood deposit in a small dry wash.
b. A flat small plateau surrounded by steep cliffs.
c. Mountain showing horizontal sedimentary layering.
d. A pediment with an alluvial fan cover.

PART II
ENVIRONMENTAL GEOLOGY (25 degree)

Answer the following questions:

First Question: Choose the correct answer: **(15 Marks, 1 Mark Each)**

1. Volcanism that takes place when columns of molten magma in mantle rises from hot spot to Earth's surface, melting crustal plate directly above it, is known as:

   a. Underwater volcanism
   b. Volcanism at destructive plate boundary
   c. Volcanism at hotspot
   d. Earthquake volcanism

2. Creep movements become faster on:

   a. Less vegetated surface
   b. Vegetated surface
   c. Steep slope
   d. Both (b) & (c)

5. Sedimentary rocks have in general higher magnetic susceptibilities than basic igneous rocks
6. Resistivity increases with increasing metallic minerals content
7. Electrokinetic potentials result from the flowing of fluid through a capillary or porous medium
8. Primary seismic waves are slower than secondary seismic waves
9. In gravity and magnetic land survey the station interval should be smaller than the size of the anomalous feature
10. Magnetic survey should be canceled when there is a magnetic storm
11. Self-Potential is classified as an active electrical method whereas the resistivity method is passive
12. The self-potentials are almost invariably negative over the top of the sulfide deposit and are quite stable in time
13. Secondary seismic waves can travel through liquids
14. In gravity survey the typical station spacing for near surface applications (e.g., archaeology) is few kilometers
15. Diurnal correction is applied to magnetic data due to the effect of solar wind on the ionosphere
16. By increasing the electrode spacing, more of the injected current will flow to shallower depths
17. The interpretation of SP is mostly quantitative
18. Electrical profiling is best suited to map lateral electrical resistivity contrasts, such as lithologic contacts
19. For seismic refraction surveying the typical natural frequency of the geophones is 14 Hz
20. The gravity acceleration varies from the equator to the pole by almost 0.5%

D) Write brief notes on <u>only ten</u> of the followings: (two marks each)

1. Type of electrical current conductions in subsurface earth materials
2. The source mechanisms of self-potentials
3. The three components of earth's magnetic field
4. Archi's law and define all of its components
5. Instrumentation used for seismic refraction field survey
6. Causes of variations of gravity acceleration "g" over the earth's surface
7. Common modes/techniques of electrical resistivity field survey
8. The different component of non-polarizable electrode
9. Characteristics of pure ferromagnetic materials
10. Advantages and limitations of resistivity method
11. The field techniques for measuring the self-potential
12. Two problems associated with the interpretation of seismic refraction data
13. List the source of changes in the earth's magnetic field
14. List the different corrections applied to gravity data
15. Airy's model of isostasy

End of questions Good luck.....

Prof. Dr.: Gamal Zidan AbdelAal

Credit Hour System - First Semester - Final Examination (13/1/2017)
Principals of Igneous and Metamorphic Rocks (232PG)
Second Level (Petroleum Geology) **Time: 2 hour**

Answer Four only of the following questions: (50 M)

Q1(12.5 M)

What is the difference between:

i- Metamorphism and diagenesis.
ii- Porphyblastic and poikiloblasts.
iii- Intrusive and extrusive rocks.
iv- Igneous dike and sill.

Q2 (12.5 M)

a- Discuss the factors affecting viscosity of magma/ lava?

b- Explain the mechanism of formation of porphyritic textured rocks?

Q3 (12.5 M)

a- Write on the pre-kinematic crystals and post-kinematic crystals?

b- Write on the various types of pyroclastic fragments?

Q4 (12.5 M)

a- What are the main characteristics of Aa Lava and Pahoehoe Lava ?

b- Mention the factors that affecting melting of minerals and rocks?

Q5 (12.5 M)

a- What is the meaning of magma differentiation?

b- Explain the various types of foliations?

3. Amount of energy released on value of '6' on Richter Scale is 32 times greater than amount of energy released on value of:

a. 2
b. 3
c. 4
d. 5

4. When plates move towards each other, they collide, this movement is known as:

a. Convergent plate movement
b. Divergent plate movement
c. Transform plate movement
d. Boundary plate movement

5. Point at which earthquake takes place is known as:

a. Origin
b. Epicenter
c. Principal
d. Focus

6. Plates and upper part of mantle combine to form a layer known as:

a. Atmosphere
b. Troposphere
c. Exosphere
d. Lithosphere

7. Sliding past of two crustal plates in opposite direction is known as:

a. Convergent plate movement
b. Transform plate movement
c. Divergent plate movement
d. Boundary plate movement

8. Water can encourage mass flow by:

a. Reducing friction between grains
b. Weathering bedrock to clay minerals
c. Undercutting a steep slope
d. All of them

9. When collision of oceanic and continental plates takes place, oceanic plate is pushed towards the:

a. Mantle
b. Core
c. Crust
d. Ocean

10. Which of the following does not promote mass movement?

a. Steep slopes
b. Forest fires
c. Heavy rainfall
d. All of them promote mass movement

11. What can cause a tsunami?

a. Landslide
b. Underwater earthquake
c. Volcanic eruption
d. All of them

12. A hill consisting of loose, dry sand that slopes at the angle of repose and has no vegetation .....

a. is stable unless over steepened by excavation
b. may flow if it becomes saturated with water
c. will be more stable if vegetation takes root on the hill
d. all of the above

13. How fast can a tsunami travel?

a. Up to 160 km an hour
b. Up to 800 km an hour
c. Up to 320 km an hour
d. Up to 1,600 km an hour

5. Scarps associated with faults are: *(3 Marks)*

a- ..... which was originally produced by .....

b- ..... which was originally produced by.....

It may be ..... or .....

6. Inversion of topography means either: *(3 Marks)*

A- .....,

Such as; 1) ..... ***2)*** ..... ***and***

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d. the level below which streams will not erode

9. The most common topographic forms in ..... terrains are Lapies and ..... *(1 Mark)*

10. A mesa is..... *(1 Mark)*

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b. A flat small plateau surrounded by steep cliffs.
c. Mountain showing horizontal sedimentary layering.
d. A pediment with an alluvial fan cover.

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2. Creep movements become faster on:

   a. Less vegetated surface
   b. Vegetated surface
   c. Steep slope
   d. Both (b) & (c)

3. A) What are the main chemical and structural differences between the othopyroxenes and the clinopyroxenes? In thin section how would you distinguish these two pyroxene groups? (4mark)
   B) Compare between reconstructive and displacive polymorphism types. (4mark)
   C) What are the main cations in the following minerals: olivine, clinopyroxene, mica, anorthite, microcline? (2mark)

4. **Given the formula $En_{60}Fs_{40}$ for an Orthopyroxene, En = Enstatite = $Mg_2Si_2O_6$, Fs = Ferrosilite = $Fe_2Si_2O_6$, Formula is $(Mg_{0.6}Fe_{0.4})_2Si_2O_6$ = $(Mg_{1.2}Fe_{0.8})Si_2O_6$**
   A) What is the type of solid solution? (2 marks)
   B) What are the factors controlling the substitution process between Mg and Fe? (2mark)
   C) Which mineral is higher in temperature of formation Enstatite $Mg_2Si_2O_6$ *or* Ferrosilite = $Fe_2Si_2O_6$? 2 marks
   D) calculate the weight percent of oxides (SiO_2,MgO,FeO). 4 marks

5. A) What is the type of ionic substitution between Na and Ca in plagioclase series. 2mark
   B) Which mineral is higher in temperature of formation albite or anorthite. 2mark
   C) Mention how can you use the optical properties of plagioclase minerals to estimate the An-content. 2 marks
   D) In the discontinuous mineral series of Bowen's Reaction Series, decreasing temperature promotes the successive formation of olivine, pyroxene, amphibole, and biotite. What general changes occur in the structural types of silicates represented by these minerals? 4 marks

6. A) What the name of process that causes Perthites? 2 marks
   B) Why Alkali Feldspars CAN have perthites, while Plagioclase Feldspars NOT have perthites? 3 marks
   C) Mention the differences and similarities between pyroxene and amphibole mineral groups 3 marks
   D) What is the type of polymorphism that cause change from low to high quartz? 2 mark

With my best wishes
Prof.Dr. Mohamed Abel-Moneim

Geology Department
Faculty of Science
Assiut University

Time: 1 H
Sep. 2017

Crystallography (231 G)

Answer the following quations

1-Indicate by the sign (✓) or (×) : (10 marks)

1-All system contain pinacoid ( )
2-Rhombohedron present in hexagonal ( )
3-Tetragonal system contain 6 planes and one four axis ( )
4-Monoclinic system contains two planes ( )
5 Pyramid is closed form ( )
6-Prism is open form ( )
7-Scalenohedron is closed form ( )
8-Cube is closed form ( )
9-A dome is parallel to a axis ( )
10-Pidon have one face ( )

2-Sterographic projection of rhombohedron, scalenohedron, first order prism and second order prism in trigonal system with example mineral crystalline in this system (7.5 marks)

3-Sterographic projection of first order prism, second order prism, first order bipyrimadal and second order bipyrimadal in tetragonal system with example mineral crystalline in this system (7.5 marks)

Good luck
Prof. Dr. Mohamed Abd El-Raouf Hassan

Geology Department
Faculty of Science **Time: 2 H**
Assiut University **Sep. 2017**

Optical Mineralogy (235 G)

I-Indicate by the sign (✓) or (×) and correct the mistaken one (30 marks):

1-Metallic oxides (ores) is black ( )
2-Metallic oxides have crystals refract light ( )
3-The absorption is always proportional to the thickness of the crystal ( )
4-When the absorption of light is homogenous in all the wave lengths, the crystal appears to be white ( )
5-The absorption increases, the crystal gradually appears to be grayish ( )
6-Colourless minerals in thin section have white light passes unaffected through the mineral ( )
7-Colourless minerals in thin section have no of its wavelengths is absorbed ( )
8-Opaque minerals (metallic ores) all wavelengths are absorbed ( )
9-Habit is depending on the oriertation of the grain ( )
10-Cleavage is related to planes of weakness in atomic structure of the minerals
11-Cleavage is good developed it is called partings ( )
12-The number of cleavages seer depends upon the shape of the mineral section ( )
13-A portion of a single euhedral crystal of calcite showing rhombohedral cleavage ( )
14-Quartz have irregular fractures and they do show cleavage ( )
15-Relief is negative when the grain has higher refractive index than its surroundings, negative if lower ( )
16-The refractive index of some anisotropic minerals is depending on the vibration direction of the light within the crystal ( )
17-Refractive index (N) of Canada balsam is 1.74 ( )
18-Is an albite, simple, and pericline twinning occur in biotite ( )
19-Minerals whose optical orientations are uniaxial ( )
20-Biaxial not has optical orientations ( )

II-Write shorts notes on (20 marks):

1-Complementary colours. (1 mark)
2-Pleochroism (1 mark)
3-What meaning of habit (1 mark)
4-What the meaning of twinkling (1 mark)
5-What the meaning of alteration (1 mark)
6-What the meaning of inclusion (1 mark)
7-What the meaning of twinning (1 mark)
8-Write on double refraction (3 marks)
9-What the interference figure of biaxial mineral (5 marks)
10-What the interference figure ofuniaxial mineral (5 marks)

Good luck
Prof. Dr. Mohamed Abd El-Raouf Hassan

Assiut University Faculty of Science Geology Department		جامعة أسيوط كلية العلوم قسم الجيولوجيا

First Semester Final Examination
Geology students 2nd Level
(Invertebrate Paleontology)

January 2017	G215	50 Marks	Time: 2 hours

Answer two only from the following questions
(Please, give illustrations if possible)

The First Question (25 Marks)
What do you know about?

1- Planktonic, Benthonic and pelagic marine organisms (give examples).
2- The most suitable marine environments for Fossilization.
3- Petrification, carbonization and mineral replacement as modes of Fossilization (give some example).
4- The Paleozoic Foraminifera index fossils.
5- The different Ammonitida suture lines from Paleozoic to end of Mesozoic Era.

The Second Question (25 Marks)
Discuss the followings:

1- The different calcareous and agglutinated Foraminiferal shells.
2- The different morphology of Foraminiferal shells.
3- The Eocene Foraminifera index fossils and rock forming fossils.
4- The main types of Pelecypoda teeth systems and the difference between Articulata Brachipoda and Pelecypoda (Bivalvia).
5- Please describe the Archaeocyatha shells and their age.

The Third Question (25 Marks)

1- Describe the main types of Spongia organism and the different Sponge spicules.
2- Please mention the main index fossils of class Anthozoa and their geologic distributions.
3- Compare between Regularia and Irregularia Echinoidea Apical system.
4- What are the main parts of Crinoidea Body?
5- The main factors controlled the paleoecological distribution of fossils with calcareous skeleton.

2. Genetic classification of valleys includes: *(2 Marks)*

a) ..... *b)* .....

c) ..... *... and d)* .....

3. Development of geomorphic features is affected by many factors, <u>Discuss</u>. *(2 Marks)*

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4. Egypt terrains is divisible geographically into the main following provinces: *(4 Marks)*

A) ..... this is characterized by .....

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B) ..... this is characterized by .....

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C) ..... this is characterized by .....

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D) ..... this is characterized by .....

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Assiut University Faculty of Science Geology Department		جامعة أسيوط كلية العلوم قسم الجيولوجيا

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5- Please describe the Archaeocyatha shells and their age.

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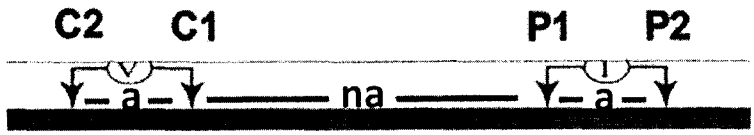
FACULTY OF SCIENCE
ASSIUT UNIVERSITY

Final Exam on Principals of Geophysics (G250)
(Two Pages – 50 marks total)

January: 2017 Time: 2 hours

A) Answer the following questions: (two and half mark each)

1) Derive the general expression for ρa for the electrode array sketched below.



2) With the help of drawing explain the Sato and Mooney (1960) model for electrochemical potential of sulfide ore deposits
3) Write on the advantages and limitations of seismic refraction method
4) Summarize in a table the similarities and differences between gravity and magnetic methods

B) Define only five of the following: (one mark each)

1. Apparent resistivity
2. Bulk modulus
3. The geoid
4. Bouguer anomaly
5. Isostasy
6. Declination
7. Shear modulus
8. Magnetic susceptibility

C) Mark only fifteen of the following statements with True or false: (one mark each)

1. Sediments and sedimentary rocks are less resistive than unweathered igneous and metamorphic rocks
2. The sign of the self-potential is an important diagnostic factor in the interpretation of SP anomalies
3. The higher the value of the modulus, the stronger the material, and the smaller the strain produced by a given stress
4. Sedimentary rocks are higher in gravity acceleration "g" than igneous rocks

See next page

Assiut University,
Faculty of Science,
Geology Department

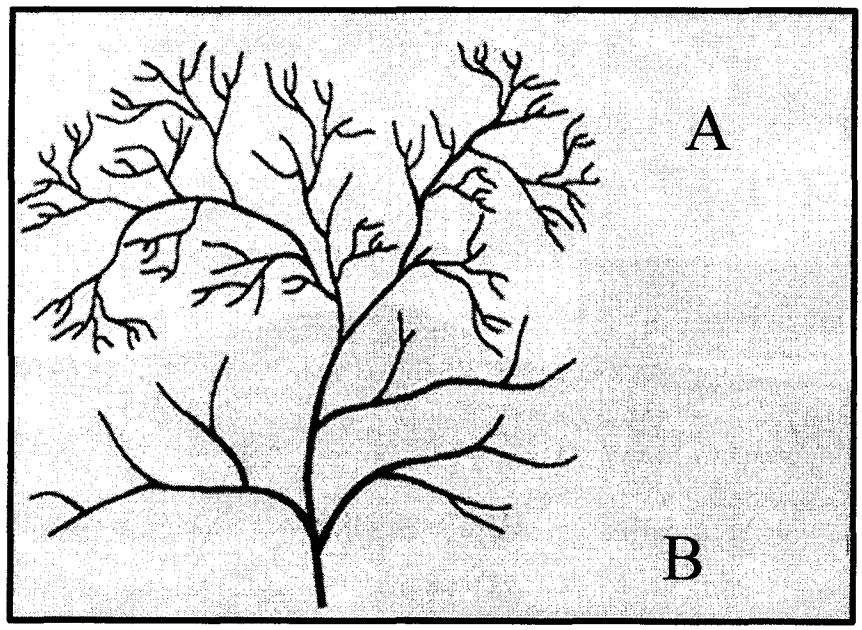
جامعة أسيوط – كلية العلوم
قسم الجيولوجيا

Second Level Examination in
Geomorphology and Environmental Geology (201G)
(Total Marks 50)

Time: Two Hours **Jan., 2017**

PART I
GEOMORPHOLOGY (25 degree)

1. The following figure illustrates a drainage basin, study it and then, answer the following questions. *(7 Marks)*



a. What type of the drainage pattern? *(1 Mark)*

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b. Outline the water divides of the following drainage basins. *(1 Mark)*

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c. How many drainage basins in this area? Outline the sub basins if present. *(1 Mark)*

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d. How would you think about the ***drainage density*** in both the upper half (A) and the lower half (B). *(2 Marks)*

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e. How would you think about the rock type that affects the ***deviations*** and the ***drainage pattern.*** *(2 Marks)*

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3. Egypt experienced an earthquake in October 12, 1992. It occurred at 15:09 local time, with an epicentre near Dahshur, 35 km south of Cairo. It was felt throughout most of northern Egypt, and as far south as Assiut. It had a magnitude of 5.8, and caused 545 deaths, injuring 6,512 and making 50,000 people homeless. Taking into account this moderate-size event and its related number of deaths, discuss briefly: a) Why do some people die in some earthquakes more than others? b) Long-term and short-term earthquake forecasting methods. **(5 Marks)**

GOOD LUCK

Prof. Dr. Ahmed Reda El-Younsy ***Dr. Rashad Sawires***

Part Two: Mineralogy

Answer ONLY TWO QUESTIONS From the Following. (Illustrate your answer with drawing as much as possible) Time One Hour (Total Marks 25)

Question No 1 A-Plagioclase is a solid solution series, known as the plagioclase feldspar series. Explain in some details What this means? What are the important fundamentals distinguished features characterize minerals belonging to this series from other known feldspars mineral groups? (9½ Marks)

B- Show How the mineral kingdom could be classified on a genetic basis (3Marks)

Question No 2 A-In silicate mineral structure, the way of linkage of the tetrahedral SiO_4 and the degree of polymerization determine the group to which the mineral belong. Show the basic structural differences characterize the (SiO_4) tetrahedral linkage in both the Inosilicate Single Chain Group and the Double Chain Inosilicate Group. What are the chief chemical as well as the optical characters distinguish minerals that crystalline in each of these groups? (9½ Marks)

B-What are the differences between these mineral phenomenon's (give examples): Plymorphism , Isomorphism and Pseudomorphism . (3 Marks)

Question No 3 A- A Complete isomorphous series is found between the members of the olivine group belonging to the Orthosilictes (Nesosilicates) structure system. What this means? Discuss briefly the most important structural, chemical and optical properties of this group. (8½Marks)

B-Correct the following mineralogical knowledge:

i-Sphalerite is an iron oxide mineral while Galena is a silver oxide mineral, and both crystalline in orthorhombic system.

ii-The mineral Pyrite has formula ($Mn O_2$) and resemble Chalcopyrite (Fe_3O_4) in its crystal structure.

iii-Cuprite is important (CuS) mineral used for production of sulfur while Ilmenite (Fe_2O_3) is used in the production of different types of steel. (4 Marks)

Good Luck و بالتوفيق

Examiner: Prof. Dr. Nadia Sharara

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريرى لطلاب المستوى الثانى بكلية العلوم شعب الجيولوجيا – الجيوفيزياء – الجيولوجيا-كيمياء
المقرر: علم الطبقات (٢١٠ ج)
دور يناير - العام الجامعى٢٠١٦/٢٠١٧م

الدرجة الكلية للأمتحان: ٥٠ درجة الزمن: ساعتان

ملحوظة الامتحان يتكون من ورقة واحدة على الوجهين

I- PART ONE

ANSWER THE FOLLOWING QUESTIONS:

Question No. 1: (7 marks)

I- Define **two only** of the following concepts: (3 Marks; 1.5 marks each)

Type locality - Magnetozone - Chronozone

II- Illustrate by drawings types of vertical contacts between the rock units. (4 marks)

Question No. 2: (6 marks)

Redraw the given table and fill in names of geochronologic units and their equivalents from chronostratigraphic units.

	Geochronologic	Chronostratigraphic
Thanetian	.....	.....
Eocene	.....	.....
Jurassic	.....	.....

Question No. 3: : (6 marks; 3 marks each)

Discuss and explain briefly **two only** of the following:

i- Parastratotype ii- Remnant magnetism ii- Lithodeme

Question No. 4: (6 marks, 3 marks each)

Compare between:

i- Flow and Sill ii- Dyke and Fault

II- PART TWO

ANSWER THE FOLLOWING QUESTIONS:

Question No. 5: Choose if the following are (right) or (wrong): (5 marks; 1 mark each)

a- Chronostratigraphy is the branch of stratigraphy that deals with the relative time relations and ages of rock bodies.

b- The "Concurrent Range Zone" is not considered one of the "Interval Zones" group.

أنظر خلفه لباقى الأسئلة

c- Stage boundaries are usually marked by extinction events.
d- Stratigraphic units which are deposited during transgressive/regressive sea-level cycles are termed systems tracts.
e- In biostratigraphic applications, species that overlap through space and time cannot be used.

*Question No. 6: : Answer **two only** of the following (10 marks; 5 marks each)*

a- State the impact of sequence stratigraphic issues on stratigraphy.
b- Discuss importance of chemistry of the stable carbon isotopes in defining global stage boundaries.
c- "Catastrophism" explains fossil turn-over and stage boundaries transition; this cannot be established by considering only "Uniformitarianism, explain.

Question No. 7: Complete the missing word(s): *(5 marks; 1mark each)*

a- Evidences for superposition can be ..... and stratigraphic.
b- Assemblage zones are based on a group of fossils that lived together in a "biocoenosis" and burried in a ".....".
c- Mid-oceanic ridges on ocean bottoms, where identical magnetic reversals are observed across both sides, can cause ..... .
d- Sequence stratigraphic units that are delimited by unconformities are called ..... units
e- Relative ages of a complex of rock suite in a given area can be established by observing the structural/stratigraphic relationships, as can be seen from rock mode of occurrences. This is termed "....."

*Question No. 8: Write briefly on **two only** of the following: (5 marks; 2.5 marks each)*

a- Development of angular unconformity.
b- Importance of time in stratigraphy.
c- Subsurface data required for stratigraphic work.

تمت الأسئلة مع أطيب الأمنيات بالتوفيق

Examiners:

Prof. Dr. Magdy S. Mahmoud (Geology Department)
Prof. Dr. Nageh A.Obaidala (Geology Department)

Geology Department Faculty of Sciences Assiut University Second level		First Term Examination Rock forming minerals (230 G) January, 2017 Two Hours

Rock forming minerals (230G)

Answer **FIVE ONLY** of the following (50 mark)

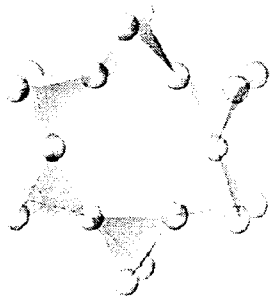
1. Circle the true statements about bonding in minerals (10 mark)
   A) Covalent bonds are the weakest type of bond
   B) Ionic bonds are formed from elements that exchange outer electrons whereas covalent bonds form by sharing outer electrons
   C) Different types of bonds commonly occur in the same mineral
   D) The strength of a bond is inversely-proportional to its hardness
   E) The coordination number is dependent on the cation:anion radius ratio
   F) A radius ratio of 1 favors octahedral (6-fold)-12-fold or close packed coordination
   G) In a two-component phase diagram for igneous systems, compositions is typically plotted against pressure
   H) The basic building block of all silicate minerals is SiO_4
   I) Mineral is a non –homogenous substance
   J) Si is the most abundant element in the earth crust.

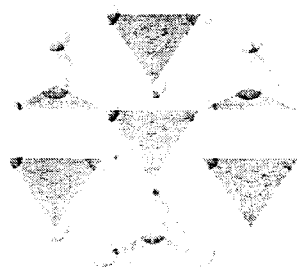
2. A. Match the MINERAL (a) and it is related internal atomic structure (b) (5 marks)

(a)	(b)
Garnet	Inosilicate (single chain)
Albite	Phyllosillicates
Biotite	Double chains
Dioside	Tectosilicates
Hornblende	Nesosilicates

B. Below is an illustration of the core silicate structure for silicate minerals. What is the NAME AND FORMULA for these structures? (5 marks)

(a) (b)





انظر خلفه

Assiut University Faculty of Science Geology Department		جامعة أسيوط كلية العلوم قسم الجيولوجيا

First Semester Examination
Zoology Students
(Paleontology)

January 2017	G211	50 Marks	Time: 2 hours

Answer the following questions:

First question (10 marks).

Discuss the following sentences (explaining your answer by drawing):

1- **Development of septa in Tetracoralla.**

2- **Sponge types.**

Second question (10 marks).

Complete the following sentences

1- **Cornacuspongia are widespread during..... and ..... Epochs.**

2- **The best environment for fossilization is.....**

3- **Foraminifera can be classified into different genera based on several criteria, among these criteria are..... , ... , ... , ...**

4- **Tabulate is more common in..... rocks and they are Reef-builders during ..... and ..... Epochs.**

5- **Calcareous nannoplankton first appeared in..... and first diversed in.....**

6- **Calcarea has ..... spicules and have a geologic range from ..... to .....**

7- **..... consider a major source of atmospheric oxygen.**

8- **Heteractinellida have a skeleton made up of .....**

9- **The dominant stage in the Scyphozoa life cycle is .....**

10- **Fossil record can tell us a lot of information about the geologic history among these information..... , ... , ... , ...**

Third question (5 marks).

Put true (√) or false (x) in the front of the following sentences with correction of the false one.

1- **Triaxonida can be classified on the basis of their tangled spicules ..... ( )**

2- **Cephalopods are very important index fossils during the Mesozoic ..... ( )**

انظر خلفة.....