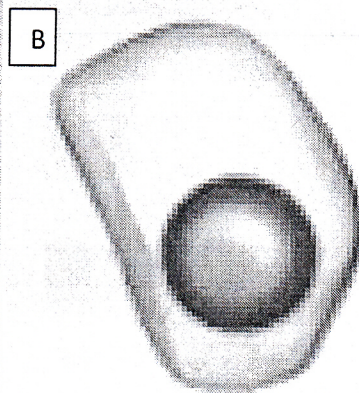
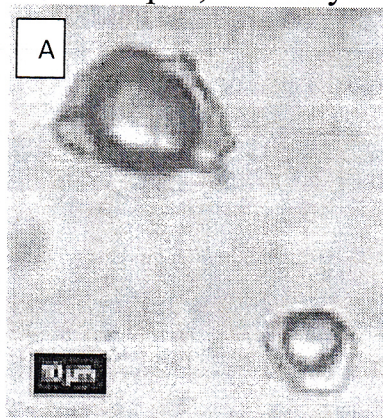




**Answer the following questions**

- 1) How you can estimate salinity using phase change microthermometry for the following chemical systems:
  - a)  $\text{H}_2\text{O}-\text{NaCl}$
  - b) oversaturated aqueous (L+V+S)
  - c)  $\text{H}_2\text{O}-\text{CO}_2-\text{NaCl}$
- 2) Identify the following:  
Isochores-invariant point-critical temperature- fluid inclusions stratigraphy (FIS)-Microthermometry
- 3) Discuss briefly the paragenetic classification of fluid inclusions.
- 4) What is the chemical system which characterized by
  - a) Eutectic temperature  $T_e$  between  $-50$  AND  $-52^\circ\text{C}$
  - b)  $T_m$  up to  $-56.6^\circ\text{C}$
  - c) Critical temperature ( $T_h$ )  $-82.6^\circ\text{C}$
- 5) In the following photos, predict which inclusion homogeneous to liquid and which to vapor, and why?



(11) (2)

- 6) Mentioned two non-destructive method to differentiate between hydrocarbon and water inclusions under microscope.
- 7) Discuss briefly the factor controlling the color of fluorescence under microscope.
- 8) Mention three applications of fluid inclusion stratigraphy (FIS) for oil production and exploration.
- 9) If you have heterogeneous trapping represented by oil and aqueous inclusions, How you can estimate the trapping conditions? Clear with drawing.
- 10) Discuss briefly the classification of fluid inclusions based on the number of phases.

With my best wishes  
Prof.Dr./ Mohamed Abdel-Moneim





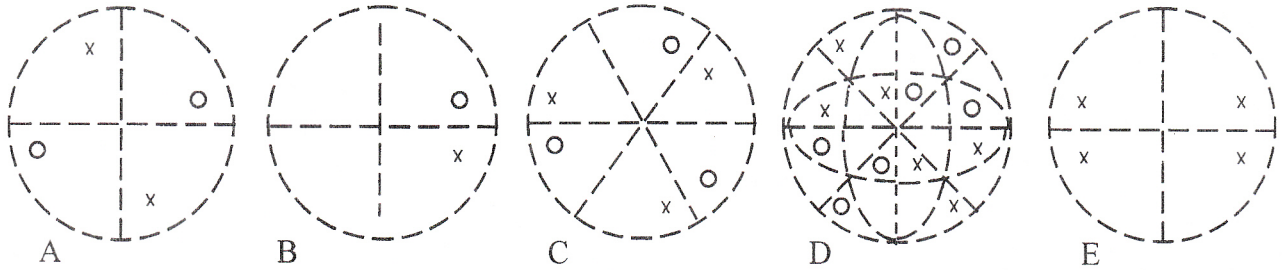
Geology Department – Students of Level Two – January 2015  
Course No. (G233) – Total marks (50) – Time allowed: 2 Hours

Answer the following questions:

1) Define ONLY 6 of the following terms:- (12 Marks)

Inversion axis - Crystal habit - General Form - Enantiomorphism  
Open Form - Polar Axis - First order - Piezoelectricity

2) Write the elements of symmetry shown by the following stereograms: (10 Marks)



3) Draw stereograms for ONLY 6 of the following forms and write their names:

(24 Marks)

$\{1\ 0\ \bar{1}\ 0\}$  in class 62

$\{0\ 2\ 1\}$  in class 222

$\{1\ 0\ \bar{1}\ 1\}$  in class  $\bar{6}$

$\{2\ 2\ 1\}$  in class  $\bar{4}2m$

$\{2\ 1\ 3\}$  in class 2

$\{3\ 2\ 0\}$  in class  $m\bar{3}$

$\{1\ 0\ \bar{1}\ 1\}$  in class 3m

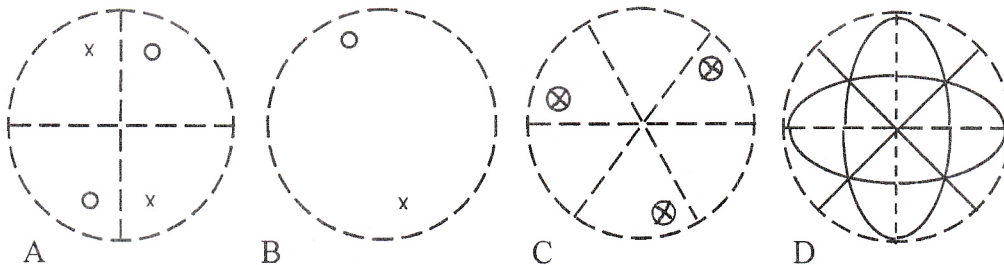
$\{1\ 0\ \bar{1}\ 0\}$  in class 32

$\{0\ 0\ 1\}$  in class 42

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

4) Write the Hermann-Mauguin symbols for the following stereograms:

(4 Marks)



Good luck

Prof. Dr/ Wagih Bishara

سوف يُعقد الامتحان الشفوي عقب التحرير مباشرة بمعمل رقم 3

Assiut University

Faculty of Science

Geology Department



جامعة أسيوط  
كلية العلوم  
قسم الجيولوجيا

**Final Exam. In Petrophysics Course (GB 226)  
For Second Level ( Petroleum Group)**

Jan., 2015

(50 marks)

Time: 2hours

I. Define the following : **(15 Marks)**

Radiation - Salinity - Thermal conductivity - Cleavage – Tortuosity

- Gamma Rays – Hardness - CEC

II. A clean and dry core sample weighing 320 g was saturated with a 1.07 specific gravity brine. The new weight is 348g. The core sample is 14 cm long and 6 cm in diameter. Calculate the porosity of the rock sample. **(5 Marks)**

III. Write on **FOUR ONLY** of the following **(20 Marks)**

1. The resistivity of shale and Factors affected on oil – water inter-facial tension.
2. Absolute permeability and factors affecting on the magnitude of Permeability.
3. The resistivity of clay, and contact phenomena between water and rock capillarity.
4. Relationship between resistivity & salinity, and parameters affected on the formation resistivity factor.
5. Oil - water system, and factors affected on resistivity.

IV. Estimate the permeability ( mD) of a reservoir rock that has a porosity of 20 % and an irreducible water saturation of 35%, then calculate all the flow unit characterization factors. **(10 Marks)**

=====Good Luck =====

Dr. Mohamed Fekry Khalil



امتحان التحريرى النهائى للمستوى الثانى شعب الجيولوجيا والجيوفيزياء والجيولوجيا-كيمياء

المادة: طبقات (Stratigraphy) (210G) الفصل الأول ٢٠١٤/٢٠١٥ م

الزمن: ساعتان

الدرجة: ٥٠ درجة

الامتحان فى صفحتين

أجب عن الأسئلة الآتية:

**I- Choose the correct answer: (10 Marks)**

- 1- Series is subdivided into .....  
a. periods    b- epochs    c- stages    d- eras
- 2- An unconformity is known as a .....  
a. non sedimentation                      b. break in fossils records  
c. erosion in rocks                          d. all of these
- 3- The concept that older rocks are on the bottom of an undisturbed sequence is called.....  
a. superposition    b. lateral continuity    c. correlation    d- inclusion
- 4- Radiometric age is referred to a(n) ..... age.  
a. absolute    b. relative    c. total    d. geologic
- 5- The principal of original horizontality states that .....  
a. all rocks in the Earth's crust are layered horizontally  
b. sediments are deposited as essentially horizontal layers  
c. igneous rocks form essentially horizontal layers  
d. all of theses
- 6- If a fault cuts a metamorphic rock formation, the fault is ..... the rock formation.  
a- older than    b- younger than    c- the same age as    d- none of these
- 7- Correlation between rocks using rock type only is termed..... correlation.  
a. seismostratigraphic                      b. chronostratigraphic  
c. biostratigraphic                          d. lithostratigraphic
- 8- Paleomagnetism is  
a. Magnetic particles point to location where rock was formed.  
b. Radiometric minerals of the rocks.  
c. Different layers of rocks.  
d. All of theses.

(2)

- 9- The matching of the same rock units at different geographic locations is called .....
- a. conformity   b. sequence   c. correlation   d. hiatus
- 10- If a fossil is found in a layer of sediment, the law of stratigraphy that will be most useful in dating the layer would be .....
- a. uniformitarianism                      b. faunal succession  
c. cross cutting                              d. non of these

## **II- Answer the following: (8 Marks)**

- 1- Define two only of the following:                      (4 Marks)

Neostratotype   b. lithodemic unit   d. Magnetostratigraphic unit

- 2- Compare between two only of the following:                      (4 Marks)

a. Sill and flow   b. Detrital and thermal remnant magnetization  
c- Formal and informal lithostratigraphic units

## **III- Discuss the vertical boundary between two formations. (7 Marks)**

## **IV- Write briefly on two only of the following: (10 Marks)**

- a- Law of superposition and its stratigraphic evidence.                      (5 Marks)  
b- Measuring dips of subsurface strata. (5 Marks)  
c- Sequence boundaries. (5 Marks)  
d- Interval zones.                      (5 Marks)

## **V- Write on two only of the following: (10 Marks)**

- a- Gamma-ray logs.                      (5 Marks)  
b- Types of subsurface rock samples.                      (5 Marks)  
c- law of faunal succession.                      (5 Marks)

## **VI- One of the main aims of stratigraphy is to correlate rocks and events, discuss this statement: (5 Marks)**

----- Good Luck -----

Examiners: Prof. Magdy S. Mahmoud; Prof. Nageh A. Obaidala (Geology Department)



Assiut University  
Faculty of Science  
Dept. of Math.

Exam of the 1st Semester 2014-2015

**Biostatistics, 241 RA**  
Petroleum Geology

January, 9, 2015

Time: 3 hours  
All degree: 50

The following are tabulated values may be used:

$$Z_{0.99} = 2.33, \quad Z_{0.995} = 2.58, \quad t_{(0.995,12)} = 3.055, \quad t_{(0.95,12)} = 1.782,$$

$$P(0 < Z < 2.95) = 0.4984, \quad t_{(0.975,9)} = 2.262, \quad P(0 < Z < 2) = 0.4772$$

**Answer one only of the two questions:** (10 degrees for one of them )

[1] The following are the heat producing capacities of coal from two mines  
( in millions of calories per ton)

|        |     |     |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|-----|-----|
| Mine A | 8.5 | 8   | 8.2 | 7.9 | 7.5 | 6.8 | 8.4 |
| Mine B | 7.6 | 7.8 | 7.5 | 8.4 | 8.3 | 7.9 | 9   |

Assuming the data constitute independent random samples from normal populations with equal variances.

Construct a 99% confidence interval for the difference between the true average heat-producing capacities of coal from the two mines.

[2] A study to determine if the prevalence and nature of podiatric problems in elderly diabetic patients are different from those found in a similarly aged group of nondiabetic patients. The investigator findings were the following statistics with respect to scores on the measurement of deep tendon reflexes:

| Sample      | n  | Mean | SD  |
|-------------|----|------|-----|
| Nondiabetic | 45 | 2.3  | 1.4 |
| Diabetic    | 40 | 2.6  | 1.2 |

We wish to know if we can conclude, on the basis of these data that average diabetic patients have reduce deep tendon reflexes when compared to nondiabetic patients. Test that at  $\alpha = 1\%$

Please, see behind the paper,,,,,,

**Answer the following questions: (10 degrees for each question )**

- [1] The following are the systolic pressures (mm Hg) of 13 patients undergoing drug therapy for hypertension:

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 184 | 154 | 191 | 170 | 162 | 145 | 173 | 116 | 114 | 147 | 140 | 160 | 140 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Can we conclude on the basis of these data that the population mean less than 160 ? test that at  $\alpha = 5\%$

- [2] What is the average serum bilirubin level of patients admitted to a hospital for treatment of hepatitis ? A sample of 10 patients yielded the following results:

|      |      |    |      |    |    |    |    |    |      |
|------|------|----|------|----|----|----|----|----|------|
| 16.4 | 14.8 | 21 | 12.5 | 15 | 26 | 22 | 18 | 19 | 16.5 |
|------|------|----|------|----|----|----|----|----|------|

Construct a 95% confidence interval for the average of the population.

- [3] (a) If the serum iron values for healthy men are approximately normally distributed with a mean 120 and standard deviation 15 micrograms per 100ml respectively, what is the probability that a random sample of 36 normal men will yield a mean between 115 and 125 micrograms per 100ml ?
- (b) A survey was conducted by care servicing company to know where 65% of its customers are satisfied or not, for this the company contacted with 270 customers and 150 of them showed satisfaction towards the service. Can it be concluded on the basis of data at 1% level of significance?

- [4] The study cited gives the following data serum cholesterol levels in two ages males, each of them is normally distributed with means 190, 180 and variances 66, 49 respectively. We select a simple random sample of size 40 independently from each population. What is the probability that the difference between sample means will be more than 15 ?

انتهت الأسئلة وتمنياتي للجميع بالتوفيق ،،،

د. هانم محمد مصطفى



First Semester, Final Examination  
For Second Level Petroleum Geologists (two pages)

|               |                 |                                        |            |
|---------------|-----------------|----------------------------------------|------------|
| Time: 2 hours | Total marks: 50 | Principals of<br>Geophysics<br>(PG253) | Jan., 2015 |
|---------------|-----------------|----------------------------------------|------------|

1) True (T) or False (F): (*one mark each*)

- Magnetic field survey should be cancelled when there is a magnetic storm.
- As clay content increases, earth electrical resistivity decreases.
- Magnetic susceptibilities of sedimentary rocks are higher than basic rocks.
- Velocity of seismic waves in sedimentary rocks is higher than igneous rocks.
- By increasing the electrode spacing, more of the injected current will flow to greater depths.
- Interpretation of Self-Potential data is mostly qualitative.
- Primary seismic waves are slower than Secondary seismic waves.
- The gravitational acceleration at the Earth's surface ranges from approximately  $9.83 \text{ ms}^{-2}$  at the poles to  $9.78 \text{ ms}^{-2}$  at the Equator.
- A ferromagnetic behavior of the Earth materials disappears at temperatures above the Curie temperature.
- 99% of the Earth's magnetic field originates from the interaction of the Earth's ionosphere with the solar wind.

2) Define only five of the following: (*two marks each*)

- |                            |                                 |                |
|----------------------------|---------------------------------|----------------|
| a) Bulk modulus            | b) Bouguer anomaly              | c) Inclination |
| d) apparent resistivity    | e) Critical angle of refraction | f) The geoid   |
| g) Magnetic susceptibility | h) Streaming potential          | i) Gradiometer |

3) Provide short answer for only ten of the following questions: (*three marks each*)

- What are the three components of Earth's magnetic field?
- List three different ways of electrical current conduction.



- c) Describe the three types of magnetic behavior of earth materials with examples.
  - d) What constitutes a "non-polarizing" electrode?
  - e) What are the advantages and limitations of seismic refraction method?
  - f) List four different applications of resistivity method.
  - g) In what two ways may one measure the actual value of gravitational acceleration (g) at a particular location?
  - h) What is the most common electrode spreads for SP survey?
  - i) List three types of resistivity field procedures.
  - j) List three different sources of changes in Earth's magnetic field.
  - k) List the different devices required for seismic refraction survey.
  - l) List four applications of gravity method
  - m) List the optimum frequency for geophones used in seismic refraction, reflection and surface waves survey.
  - n) List three different applications of seismic refraction method
  - o) What gravity corrections are applied to:
    - 1) correct actual values of "g" to remove that portion due to the mass between sea level and the elevation at which "g" was measured,
    - 2) correct actual values of "g" to remove the effects of nearby mountains and valleys,
    - 3) correct actual values of "g" to sea level.
- 

GOOD LUCK Dr. Gamal Zidan

|                                                               |                                                                                   |                                              |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|
| Assiut University<br>Faculty of Science<br>Geology Department |  | جامعة أسيوط<br>كلية العلوم<br>قسم الجيولوجيا |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|

**First Semester Examination  
Geology Students, 2<sup>nd</sup> Level  
(Invertebrate Paleontology)**

|           |       |          |               |
|-----------|-------|----------|---------------|
| June 2015 | G 215 | 50 Marks | Time: 2 hours |
|-----------|-------|----------|---------------|

**Answer Four Questions Only:**

**The First question (12.5 Marks).**

**What do you know about the following:**

1. Shell morphology and shell wall of Foraminifera.
2. Skeleton of Archaeocyatha.
3. Paleozoic index fossils (give some examples).

**The Second question (12.5 Marks).**

**Write on the following:**

1. Development of septa in Tetracorall.
2. The relation between Tetracoralla and Hexacoralla.

**The Third question (12.5 Marks).**

**What are the correct ages of the following:**

1. Tetracoralla, Tabulata, Fusuline Limestone, and Nummulitic Limestone.
2. What are the different modes of fossil preservations?



**The Fourth question (12.5 Marks).**

Mollusca is wide distributed in Recent age: Give a short notes on:  
Teeth in Pelecypoda, Shell parts in Gastropoda and test of nautiloidea.

**The Fifth question (12.5 Marks).**

**Discuss the following:**

1. Skeleton of Crinoidea.
2. Regular and Irregular Echinoidea.
3. Internal structure of skeleton in articulate Brachiopoda.

**The Sixth question (12.5 Marks).**

**Write on the following:**

1. Homeomorphy and shell wall structure of articulate Brachiopoda.
2. Apical system in Echinoidea.

*Good luck,*

**Prof. Dr. Hassan A. Soliman**

**Prof. Dr. Adel A. Hegab**



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

Time: Two Hours

Jan., 2015

**PART ONE**  
**GEOMORPHOLOGY** (25 degree)

Complete the following: (*Illustrate when Possible*)

- 1- The principle of Uniformitarianism means ..... (1 degree)
- 2- Scarps associated with faults are: ..... (3degree)
  - a- ....., which was originally produced by .....
  - b- ....., which was originally produced by ..... It may be ..... or .....
- 3- Inversion of topography means: ..... (3degree)
  - A- .....  
Such as: ..... and/or
  - B- .....  
Such as: .....
- 4-Valley developed vertically by the action of: ..... (2 degree)
  - i. ....
  - ii. ....
  - iii. ....
  - iv. ....
- 5- The boundary of a watershed is defined by ..... (1 degree)
  - a- the largest order of the main stream.
  - b- a continental divide.
  - c- the number of tributaries in a basin.
  - d- none of the above.
- 6—A drainage basin is ..... (1 degree)
  - a- the length of a large river.
  - b- a lake or ocean into which a river drains.
  - c- the lowest level a river can erode
  - d- the total area drained by a stream and its tributaries.
- 7-Among the Features diagnostic of Fault Scarps are : ..... (4degree)
  - a- .....
  - b- .....

Where those diagnostic of Fault-line scarp are:

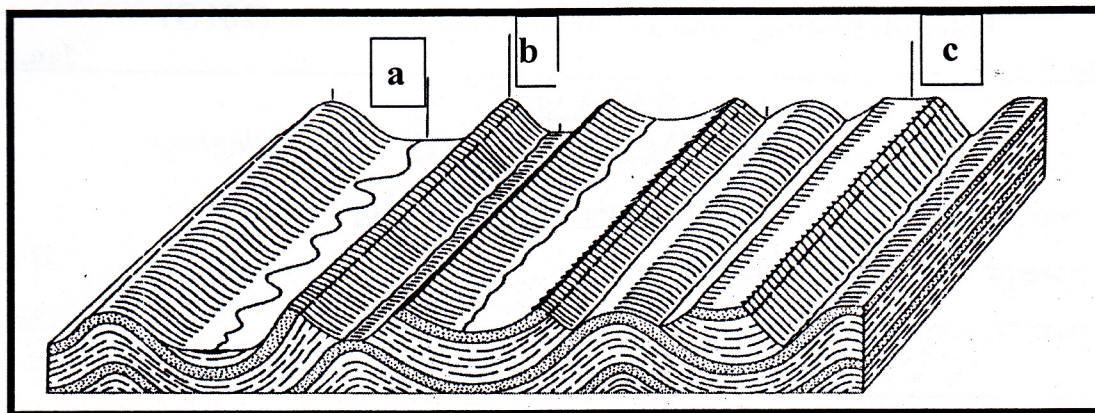
  - a- .....
  - b- .....



8 - Among the topographic expressions of eroded folded areas are:

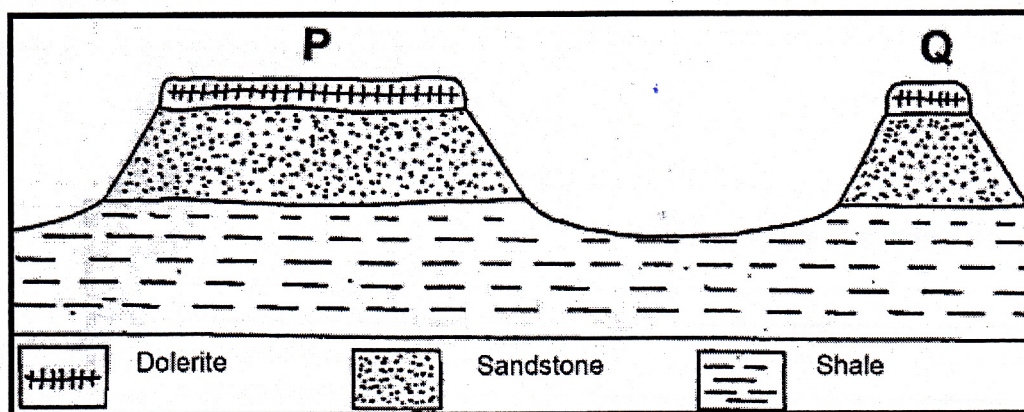
(3degree)

- a) \_\_\_\_\_, which developed upon \_\_\_\_\_  
 b) \_\_\_\_\_, which developed upon \_\_\_\_\_  
 c) \_\_\_\_\_, which developed upon \_\_\_\_\_



9-The following diagram illustrates a structural landscape typically found in the horizontal shale and sandstone beds.

(5degree)



- a- Identify landforms P \_\_\_\_\_ and Q \_\_\_\_\_ respectively.  
 b- What evidence in the figure suggests that landforms P and Q developed from the same landform that existed earlier? \_\_\_\_\_  
 c- Which rock type in the figure is the most resistant to erosion? \_\_\_\_\_  
 d- Give ONE reason for your answer to question c. \_\_\_\_\_  
 e- Briefly describe how landform P will change into landform Q. \_\_\_\_\_

10 -Bajada means \_\_\_\_\_, it consists of a

(2 degree)



**PART TWO****ENVIROMENTAL GEOLOGY (25 degree)**

Answer ALL of the following questions

Q1a-Use the following words/sentences to complete the following sentences

(5 Marks).

talus, colluvium, shear strength, frictional resistance, complex rock fall and rockslide, gravitational forces, carbonization, sliding contacts, carbonization, regolith, rock, slope angle, type and rate

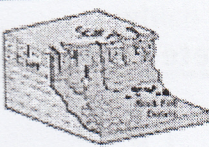
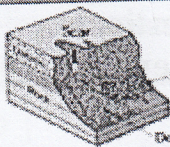
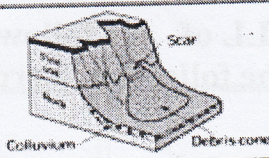
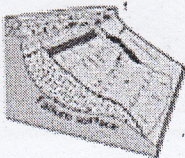
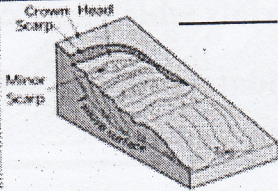
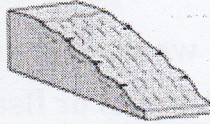
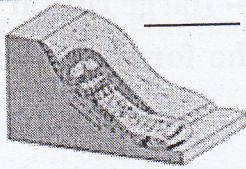
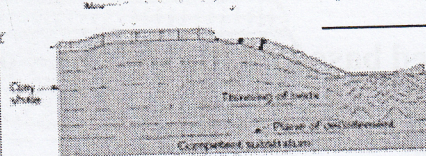
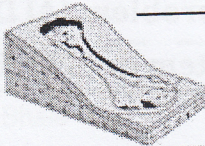
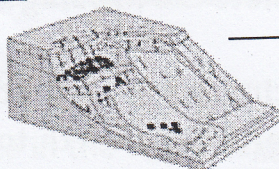
- 1-The two fundamental materials which may comprise a slope: \_\_\_\_\_ and \_\_\_\_\_
- 2-\_\_\_\_\_ is a weak, unconsolidated deposit which forms a continuous mass lacking significant joints or fissures.
- 3-Regolith may consist of ----- (large rock fragments) or ----- (finer material-----  
----- is responsible about the formation of secondary permeability in carbonate rocks.
- 4- Mass Movement down slope occurs when-----exceeds -----
- 5- Mass movement on a slope is classified based on the -----of movement and -  
----- of material moved.
- 6-Mukattam problem (Al Duweika) is a \_\_\_\_\_ and it is mainly caused by improper sewage system in Al Mukattam limestone plateau suburb.

Q1b-Use the following words/sentences to complete the missing spaces in the figure  
(8 Marks)

topples, slides, spreads, Flows, composite non circular part rotational slide grading to earth flow, complex, rock fall, debris fall, earth fall, earth topple, rock topple, debris topple, rock slide, earth slide, debris slide, single rotational slide, successive rotational slide, multiple rotational slide, slump earth flow with rock debris, soil creep, falls, slide, rock fall, rock slide, and rock topple, volcanism, tectonic plate boundaries, earthquakes, magma, Low silica content and higher temperature magmas, with high silica content and lower melting temperatures



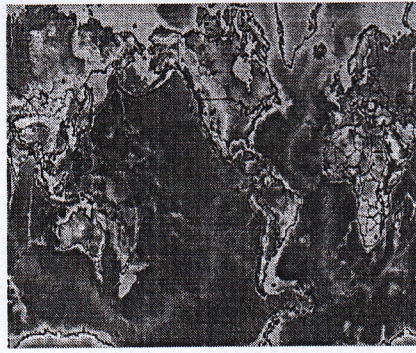
(4)

| Material               |                                                                                     |                                                                                      |                                                                                      |
|------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Movement type          |                                                                                     |                                                                                      |                                                                                      |
|                        |    |     |    |
|                        |    |     |    |
| Rotational             |    |     |   |
| Translational (planar) |    |     |    |
|                        |   |                                                                                      |  |
|                        |  |   |  |
|                        |  |  |                                                                                      |



This bowed tree trunk is an indication of -----





Active -----is clearly related to----- . The nature of the eruption is strongly controlled by the source of the----- . Magmas -----tend to produce explosive eruptions. -----tend produce quiescent eruptions.

**Q2-Write briefly about three of the followings (12 marks):**

- 1-Slope mitigation techniques
- 2-Natural resources and how they can be protected.
- 3-Natural hazards
- 4-Drunka catastrophic event of November, 1994 (Science aspects Not the story of it).

GOOD LUCK

*Prof.Dr. Ahmed Reda El-Younsy*

*Prof.Dr. Abd El Azeem M. Ibraheem*



|                                                               |                                                                                   |                                              |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|
| Assiut University<br>Faculty of Science<br>Geology Department |  | جامعة أسيوط<br>كلية العلوم<br>قسم الجيولوجيا |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|

**First Semester Examination  
Petroleum Geology Students, 2<sup>nd</sup> Level  
(Invertebrate Paleontology and Paleoecology)**

|           |       |          |               |
|-----------|-------|----------|---------------|
| June 2015 | G 217 | 50 Marks | Time: 2 hours |
|-----------|-------|----------|---------------|

**Answer Two Questions Only:**

**The First question (12.5 Marks).**

**What do you know about the following:**

1. Shell morphology and shell wall of Foraminifera.
2. Skeleton of Archaeocyatha.
3. Paleozoic index fossils (give some examples).

**The Second question (12.5 Marks).**

**Write on the following:**

1. Development of septa in Tetracorall.
2. The relation between Tetracoralla and Hexacoralla.

**The Third question (12.5 Marks).**

**What are the correct ages of the following:**

1. Tetracoralla, Tabulata, Fusuline Limestone, and Nummulitic Limestone.
2. What are the different modes of fossil preservations?



(2)

**The Fourth question (12.5 Marks).**

1. What are the main types of marine organisms.
2. What are the main factors affecting the preservations of fossils.
3. What is the relation between fossilization and digenesis of sedimentats.

*Good luck,*

*Prof. Dr. Hassan A. Soliman*

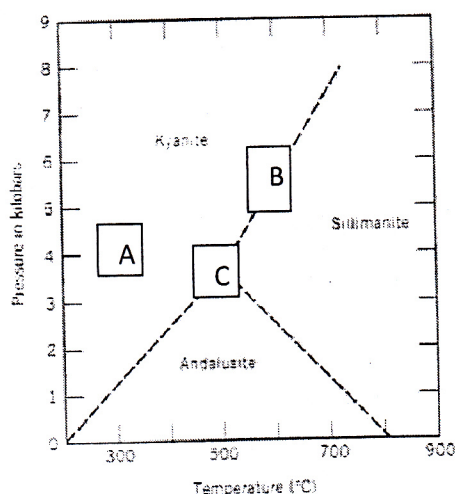


**Rock forming minerals (230G)**

**Answer FOUR ONLY of the following:**

**The first question (12.5 marks)**

**A)** This is an example of phase diagram of  $\text{Al}_2\text{SiO}_5$ , answer the following:



- 1) How many components?
- 2) How many phase(s) should be present at P-T conditions defined by point A?
- 3) How many degrees of freedom will maintain equilibrium at conditions represented by point A?
- 4) Which phase(s) should be present at P-T conditions defined by point B?
- 5) How many phase(s) should be present at P-T conditions defined by point C?

**B)** Choose the correct answer:

- 1) In the QUARTZ mineral the Si : O ratio is equal:  
a) 2 : 7    b) 1 : 4    c) 2 : 5    d) 1 : 2
- 2) The type of solid solution in  $\text{KCl} \rightarrow \text{NaCl}$  is:  
a) Omission    b) coupled    c) simple substitutional    d) interstitial
- 3) The separation of a solid solution into two or more distinct crystalline minerals, known as :  
a) isomorphism    b) polymorphism    c) exsolution    d) pseudomorphism
- 4) The silicate structure of mica minerals is :  
a) chain structure    b) tectosilicate structure    c) sheet structure    d) sorosilicate
- 5) The silicate structure in pyroxene minerals is called:  
a) double chains    b) nesosilicate    c) sorosilicate    d) single chain

**The second question (12.5 marks)**

**A)** Mark each statement as true (✓) or false (X). If false correct it (5 marks)

- 1) Amphibole mineral have OH group in their chemical composition (    )
- 2) Pyroxene minerals all have two sets of cleavage dissected at angles 120° and 60° (    )



(2)

- 3) Chemical classification of minerals are based on anions ( )
- 4) SiO<sub>4</sub> - group is the unit cell of silicate minerals ( )
- 5) The substitutional solid solution in the BERYL mineral is coupled type ( )

B) Compare between the following:

- 1) Pyroxene and Amphibole mineral groups from the following point of view:  
Chemical formula – silicate structure - cleavage
- 2) Displacive and reconstructive polymorphism

**The Third question** (12.5 marks)

A) Match the element pairs that are likely to substitute for each other in solid solution sites.

|                  |                  |
|------------------|------------------|
| Na               | Fe <sup>3+</sup> |
| Al               | Mn               |
| Fe <sup>2+</sup> | K                |
| Ca               | Zn               |

B) What is the Goldschmidt's mineralogical phase rule? why is phase rule useful?

**The Fourth question** (12.5 marks)

- A) What causes Perthites ?
- B) Why do Plagioclase Feldspars NOT have perthites?
- C) Why Alkali Feldspars CAN have perthites?

**The fifth question** (12.5 marks)

A) For the following mineral chemical analyses, determine the mineral formula.

| Oxide                          | Wt%   | MWOx  | Moles<br>Oxide | Moles<br>Cation | Moles<br>Oxygen |
|--------------------------------|-------|-------|----------------|-----------------|-----------------|
| SiO <sub>2</sub>               | 37.08 | 60.08 | .....          | .....           | .....           |
| Al <sub>2</sub> O <sub>3</sub> | 62.92 | 40.31 | .....          | .....           | .....           |
| <hr/>                          |       |       |                |                 |                 |
| total                          | 100%  |       |                |                 |                 |

Mole ratios Al: Si: O =  
Formula:

B) Rearrange the following minerals based on discontinuous Bowen's reaction series (from high to low T).

Clinopyroxene - biotite - olivine - orthopyroxene - amphibole

With my best wishes  
Prof.Dr./ Mohamed Abdel-Moneim

|                                                      |                                                                                   |                                            |
|------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------|
| Assiut University<br>Faculty of Science-Geology Dept |  | جامعة أسيوط<br>كلية العلوم- قسم الجيولوجيا |
|------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------|

## Crystallography and mineralogy (G231)

**Time:** Two Hours

**Jan., 2015**

### **PART I (Crystallography, Total Marks 25)**

#### **Answer the following questions:**

1-Sterographic projection of the following forms:

**Octahedron, Rhombic-dodecahedron, Trioctahedra and Trapezohedra.** (5 Marks)

2-Sterographic projection of the following forms:

**First order prism, Second order prism, Dihexagonal prism and First order bipyramidal in hexagonal system.** (5 Marks)

3-Sterographic projection of the following forms:

**First order prism, Second order prism, Ditetragonal prism and Second order bipyramidal in tetragonal system.** (5 Marks)

4-Sterographic projection of the following forms:

**Prism, A-dome, B-dome and bipyramidal in orthorhombic system.** (5 Marks)

**5-Choose the correct answer of the following:**

(5 Marks)

1-Prism form is: a-open b-closed

2-First order prism has miller index: a-110 b-100 c-hko

3-Ditetragonal prism has miller index: a-110 b-100 c-hko

4-Bipyramid is: a-open b-closed c-compound

5-Mineral crystal in octahedron form is  
a-fluorite b-pyrite c-galena d-all of the above.



## Part Two (Mineralogy)

Answer the following questions:

1.a) What are the factors controlling the ionic substitution process? (5 marks)

b) For the following mineral chemical analyses, determine the mineral formula. (5 marks)

| Oxide            | Wt%   | MW <sub>Ox</sub> | Moles<br>Oxide | Moles<br>Cation | Moles<br>Oxygen |
|------------------|-------|------------------|----------------|-----------------|-----------------|
| SiO <sub>2</sub> | 42.7  | 60.086           | .....          | .....           | .....           |
| MgO              | 57.3  | 40.312           | .....          | .....           | .....           |
|                  | ===== |                  |                |                 | =====           |
| total            | 100%  |                  |                |                 |                 |

Mole ratios Mg: Si: O =

Formula:

2. a) Why plagioclase feldspar cannot have perthites? (5 marks)

b) Compare between displacive and reconstructive polymorphism. (5 marks)

c) Compare between pyroxene and amphibole mineral groups from the following points: (5 marks)

Silicate structure- Chemical composition- cleavage planes

Prof. Dr. Mohamed Abdel Raouf

Prof. Dr. Mohamed Abdel Monem



السؤال الأول: -

- ( أ ) أذكر أهم الأخطاء المتوقعة في القياسات الطولية ؟  
( ب ) أ ب ج د مضع عبارة عن جزء من شبكة توافرسات و يراد التحقق من الأطوال و الزوايا و لذلك أخذت الأرصاد التالية بالبوصله المبينه بالجدول : -

| الضلع | الانحراف الأمامي | الانحراف الخلفي |
|-------|------------------|-----------------|
| أ ب   | ٠٠ ٦١            | ٠٠ ٢٤٤          |
| ب ج   | ٣٠ ١٥٨           | ١٠ ٣٣٩          |
| ج د   | ٤٠ ٢٥٤           | ٥٠ ٧٦           |
| د أ   | ٢٠ ١٧            | ٣٠ ١٩٦          |

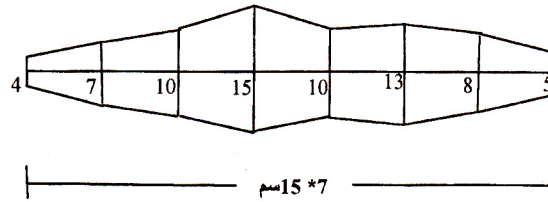
- ١ - حساب القيم المصححة للانحرافات بالطريقة التقريبية البسيطة .  
٢ - رسم كروكي للمضع إذا علم أن طول أ ب = ٢٥٨ م ، ب ج = ٣٤٠ م .

السؤال الثاني: -

- ( أ ) أذكر أنواع الخرائط التي لها مقاييس الرسم التالية:  
١ - مقياس الرسم ١ : ٥٠٠٠ هي خريطة .....  
٢ - مقياس الرسم ١ : ٢٤٣٧ هي خريطة .....  
٣ - مقياس الرسم ١ : ٢٥٠٠ هي خريطة .....  
( ب ) قيس خط ( أ ب ) علي خريطة فوجد أن طوله = ٣٢ سم بينما كان طوله في الطبيعة ٧٩٩.٩٧ م احسب مقياس رسم الخريطة. و ارسم لها مقياس رسم شبكي يبين إلى أقرب ٢.٥ م و بين عليه الطول ٦٠ م .

السؤال الثالث: -

- ( أ ) أخذت القراءات التالية علي محور مشروع فكانت : -  
١.١٠ ، ١.٣٠ ، ١.٦٠ ، ٢.٢٠ ، ١.٧٠ ، ٠.٩٠ ، ١.٤٠ ، ١.٨٠ ، ٢.١٠ ، ٢.٧٠ ، ٠.٤٠ ، فإذا كانت القراءة الثانية مقدمة و القراءة الثامنة مؤخره و نقل الميزان بعد النقطة الرابعة و كانت النقطة السادسة نقطة دوران . دون القراءات في جدول ميزانية مناسب ثم احسب مناسيب النقاط المختلفة إذا كان منسوب النقطة الثالثة ( ٣٥.٠٠ م ) تحت سطح البحر. ثم حقق النتائج حسابيا .  
( ب ) باستخدام طريقة سيمبسون احسب مسطح قطعة الأرض المبينة بالشكل علي الطبيعة بالفدان و القيراط و السهم إذا كان مقياس رسم الخريطة ١ / ٥٠٠٠ و الأبعاد المبينة بالسنتيمتر .



انتهت الأسئلة بالتوفيق و النجاح ،،،

د. د. محمد العال محمد الواسع





كلية الهندسة  
جامعة أسيوط

امتحان الفصل الدراسي الاول يناير ٢٠١٥  
الفرقة الثانية علوم جيولوجيا (بتترول)  
ماده المساحة  
الزمن ساعتان



معمل المساحة  
قسم الهندسة المدنية

٢٢١

### السؤال الاول (٥٠% من الدرجة الكلية)

١- اكمل ما يلي ؟

خريطة مقياس ١/٥٠٠ هي ..... & خريطة مقياس ١/٢٥٠٠ هي .....

٢٩١٢,٤٥ م٢وي = ..... دائري. & القصبة المربعة = ..... ذراع بلدي مربع.

٢- اذكر خطوات رفع منطقه باستخدام ادوات القياس الطولية ؟

٣- اخذت القراءات الاتية عند عمل ميزانية شبكيه لمحجر فكانت كما يلي :-

١,٣٦-١,٢٧-١,٤٧-١,٨٢-١,٨٤-١,٣٥-٠,٤٨-٠,١٨-٢,١٤-١,٢٤-٢,٣١-١,٦٣-١,١٥-٢,٢٠-٢,٠٤-١,٣٢

فاذا كانت القراءات الثالثة والسابعة مؤخرات وكانت القراءه العاشره مقدمات ونقل الميزان عند النقطة التاسعة وكانت النقطة العاشره نقطة دورات .دون القراءات في جدول ميزانية واحسب مناسب النقط اذا كانت النقطة الخامسة روبر منسوبة (٢٣,٠٠) متر فوق سطح البحر وحقق الناتج حسابيا.

### السؤال الثاني (٥٠% من الدرجة الكلية)

١- اذكر مميزات وعيوب البوصله المنشورية ؟

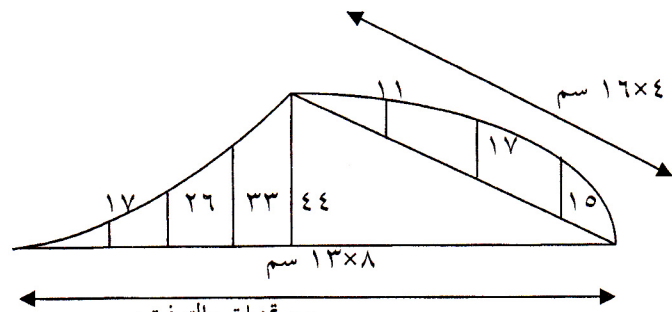
٢- رصدت الانحرافات الاتية علي المضلع المقفل أ ب ج د فكانت كما يلي:

| الانحراف الخلفي | الانحراف الامامي | الضلع |
|-----------------|------------------|-------|
| ٠.٦٠            | ١.٠              | ب أ   |
| ٠.١٣٩           | ٢.٠              | ج ب   |
| ٠.١٢٣           | ٤.٠              | د أ   |
| ٠.٠٧٨           | ٤.٠              | ج د   |

أ- تصحيح الانحرافات بالطريقة البسيطة

ب- رسم كروكي للمضلع اذا كان طول ب د = ٤٢٠ م وطول أ ب = ٣٦٠ م

٣- الشكل التالي عباره عن قطعه ارض مرسومه علي خريطه فاذا كان مسطح هذه القطعة علي الطبيعة هو ( ٤٤٥ فدان، ١٨ قيراط، ١١.٥٤٤ سهم) احسب مقياس رسم الخريطه وارسم له مقياس شبكي ليبين لاقرب ٠,٥٠ متر.



استاذ المادة

..... مع تمنياتي بالتوفيق،

أ.د/ عبدالعال محمد عبدالواحد

٢٢١



**First Semester Final Exam**

**Subject:** Principles of Geophysics (250 G)

**Students:** Second Level (all groups)

**Answer the following questions:-**

**I- Indicate by the mark ( X ) or ( √ ) and correct the wrong sentence(s):** (18 marks)

- 1- ( ) The gravitational acceleration has a maximum value at the equator.
- 2- ( ) Shear waves propagate at speeds that are faster than longitudinal P- waves.
- 3- ( ) Bouguer correction reduces the effect of the attraction of the material between a reference elevation and that of the given station.
- 4- ( ) Reflection occurs when the acoustic impedance contrast at the interface is equal to zero.
- 5- ( ) Magnetic declination is the angle between the magnetic north and geographic north of the earth.
- 6- ( ) Inclination is the angle between the total magnetic field and the horizontal component.
- 7- ( ) Thermal Remnant Magnetization (TRM) is acquired during sedimentation process.
- 8- ( ) Attraction force of the Earth increases below the sea level.
- 9- ( ) Reflection time distance curve above a horizontal interface can be represented by hyperbola.
- 10- ( ) Centrifugal acceleration of the earth is equal to zero at the pole.
- 11- ( ) head wave can be generated and detected near the shot point.
- 12- ( ) Remnant magnetization is removed after removal of the magnetic field.

**II-Complete ONLY FOUR from the following:** (12 marks, 3 marks each)

- 1) The gravitational potential is: .....
- 2) The magnetic method depends mainly on the physical property of the earth that is: .....
- 3) Shear waves usually generated when: .....
- 4) Average velocity of the subsurface succession is: .....
- 5) The Geoid is defined as: .....

**III- Write on ONLY FOUR of the following:** (20 marks, 5 marks each)

- 1- Types of the Secondary waves which generated at the interface between layers in different cases.
- 2- Origin and elements of the Earth's magnetic field.
- 3- Estimate the depth to the buried spherical body from gravity data.
- 4- Find the depth to reflecting horizontal interface
- 5- Bouguer correction.



(1)

|                                                               |                                                                                   |                                              |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|
| Assiut University<br>Faculty of Science<br>Geology Department |  | جامعة أسيوط<br>كلية العلوم<br>قسم الجيولوجيا |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------|

First Semester Examination  
Zoology Students, 4<sup>th</sup> Level  
(Paleontology)

|              |      |          |               |
|--------------|------|----------|---------------|
| January 2015 | G211 | 50 Marks | Time: 2 hours |
|--------------|------|----------|---------------|

Answer Four questions only.

The First Question (12.5 Marks)

Compare between the following:

1. Microspheric and Megalospheric forms in Foraminifera.
2. Nautiloids and Ammonids.

The Second Question (12.5 Marks)

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

1. Bivalvia shell wall structure is consisting of four distinct layers which made up of Silica..... ( ).
2. Ceratitic suture line in Ammonidea is restricted to Triassic age..... ( ).
3. The light intensity which considers one of the most important physical factors is directly controlled the distribution of Foraminifera..... ( ).
4. Order Cornacuspongia contains Ascon and Sycon type which range from Cambrian to Permian age..... ( ).
5. Marine environments consider the best environment for fossil preservation..... ( ).
6. During the Permian age; Tetracoralla reach their maximum diversity....( ).

(2)

**The Third Question (12.5 Marks)**

**Write on the following:**

1. Development of septa in Tetracoralla.
2. Index fossils; give some examples.
3. Dental plate in Pelecypoda.

**The Fourth Question (12.5 Marks)**

**Choose the correct answer:**

1. Bivalvia prefer..... water.  
a. Fresh                      b. Brackish                      c. None of them                      d. All of them
2. Class Scyphozoa contains ..... amount of mesoglea.  
a. Large                      b. Small                      c. Intermediate                      d. No
3. The geologic range of Archaeocyatha is .....  
a. Cambrian to Recent      b. Devonian to Permian      c. Cambrian      d. Precambrian
4. The skeleton of Triaxonida is made up of.....  
a. Organic matter                      b. Calcite                      c. Silica                      d. Aragonite
5. Gastro vascular cavity which have four pouches characterize class.....  
a. Tetracoralla                      b. Tabulata                      c. Siphonaria                      d. Scyphozoa
6. Gastropoda live in.....environment and favor.....water temperature.  
a. Deep marine                      b. Shallow marine                      c. Continental  
d. Cold                      e. Warm                      f. Moderate

**The Fifth Question (12.5 Marks)**

**Write briefly on the following:**

1. Ascon, Sycon and Leucon types of Spongia.
2. Evolution of suture line in Cephalopoda.
3. Skeleton of Archaeocyatha.

*Good luck,*



(1)

**Third Level Final Examination of the 264 GP Course  
for Students majoring in Petroleum Geology  
January, 2014**

**Time: Two hours**

---

**Answer ONLY FIVE of the following:**

**( illustrate your answer as possible as you can)**

- 1) Types of stratigraphic oil traps.**
  - 2) Evidences supporting the organic origin of oil.**
  - 3) Petroleum exploration activity in Middle and Upper Egypt.**
  - 4) Write short notes on the following:**
    - a) Directional drilling.**
    - b) Nodding donkey well head pump.**
  - 5) Write briefly on:**
    - a) One criterion for fault interpretation.**
    - b) Phantom horizon.**
  - 6) Write shortly on:**
    - a) Different types of petroleum migration.**
    - b) Formation volume factor.**
  - 7) Types of structural oil traps.**
- 

**Good luck**

**Prof. Ali Abdel Aati**

**Mark Yes (  $\sqrt{\phantom{x}}$  ) or (  $\times$  ):**

- 1- Crossing the two polaroids produce darkness.
- 2- The rock forming minerals comprise isotropic and anisotropic ones.
- 3- Anisotropic crystals seen between crossed polaroids produce interference colours.
- 4- Uniaxial crystals have one optic axis.
- 5- Biaxial crystals have two optic axes.
- 6- The polarizing microscope is a compound one.
- 7- Constructive interference of light waves gives brightness.
- 8- Z, Y and X vibrations in biaxial minerals are extraordinary.
- 9- The ray surfaces of anisotropic minerals are compound ones.
- 10- Interference figures are optical patterns formed for anisotropic minerals.

**Select from the lettered choices that choice or choices which complete or answer the question:**

- 11- The polarizing microscope
  - a- Is a compound one.
  - b- Has a rotatory stage.
  - c- Contains two polaroids.
- 12- Isotropic minerals crystallize
  - a- In cubic system.
  - b- In isometric system.
  - c- In Hexagonal system.
- 13- In calcite rhomb E ray
  - a- Vibrates parallel to the short diagonal.
  - b- Vibrates parallel to the optic axis.
  - c- Vibrates parallel to the long diagonal.
- 14- The two polaroids are crossed
  - a- The field of view is dark.
  - b- The polarization planes of the polaroids are perpendicular.
  - c- The field of view is illuminated.
- 15- Interference figures
  - a- Are optical patterns.
  - b- Characteristic to anisotropic minerals.
  - c- Characteristic to isotropic minerals.



16- Positive uniaxial crystals

( 2 )

a-E ray is slow.

b-O ray is fast.

c-E ray is fast.

17- Crushed grains of calcite

a-Shows twinkling in plane polarized light.

b-By stage rotation the relief changes.

c-By stage rotation the relief does not change.

18- Anisotropic minerals crystallize

a- In cubic system.

b- In noncubic systems.

c- In Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

19- The stage of the polarizing microscope

a-Is rotatory.

b-Is divided into 360 degrees.

d- Is not rotatory.

20- The image seen through the ocular

a-Is an enlarged virtual one.

b-Is an enlarged imaginary one.

c-Is a real one.

### Complete:

21- Light is .....when it passes through anisotropic minerals.

22- The value ( $n_z - n_x$ ) is called.....

23- Constructive interference of light waves gives.....

24- The light waves at the isogyres consist of .....component parallel to the .....

25- The stronger is the birefringence the higher is the order of the .....

26- A calcite rhomb when revolved in plane polarized light will display .....

27- The two isogyres of uniaxial interference figure do not rotate means that the thin section of the mineral is .....to the optic axis.

28- The breaking up of the white light into the colours of the spectrum is called .....

29- Crushed mineral grains show variable degrees of interference colours, indicate .....

30- Uniaxial crystals have one .....



Second Level Final Examination in Geomorphology (209GP)

For Petroleum Geology students

Time: Two Hours

(Total degrees 50)

Jan., 2015

A) - Complete the Following:

(Illustrate when possible)

1- Development of geomorphic features is affected by the exogenic processes which means

(3 degree)

2-Base level is:

(3 degree)

- 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

3-The following map illustrates a drainage pattern landscape:

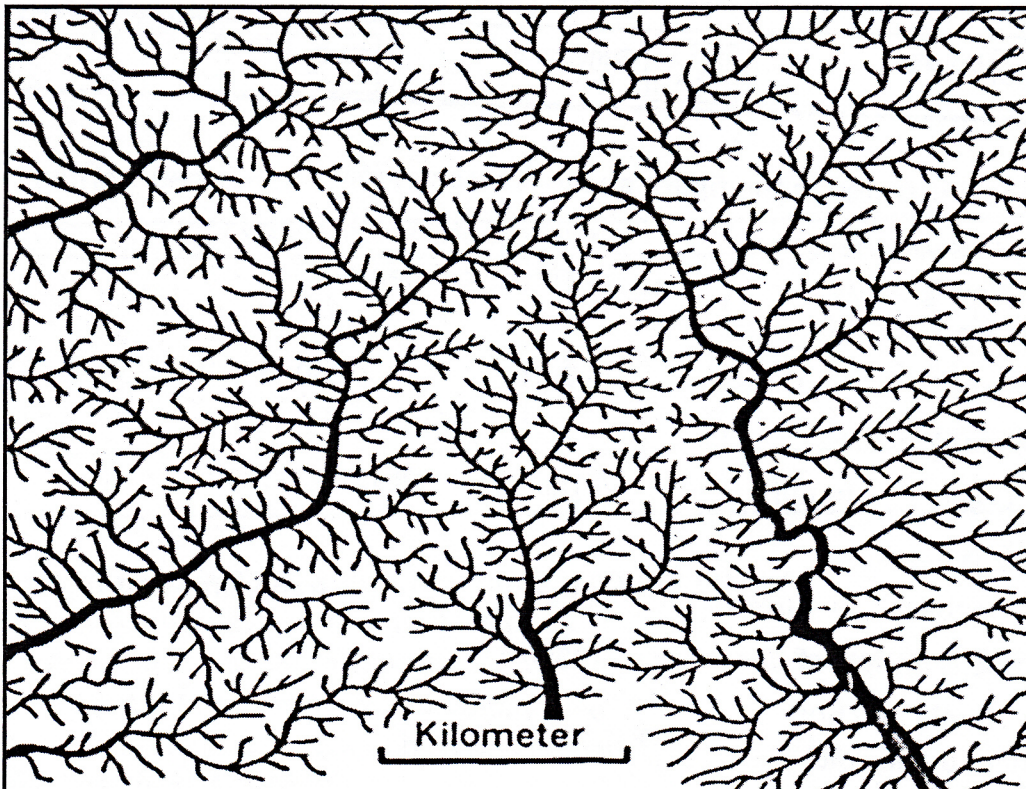
(6 degree)

a. What type of the drainage pattern?

b. How many drainage basins in this area?

c. Outline the water divides of the following drainage basins.

d. How would you think about the rock type that affects the drainage pattern?





(6 degree)

4- Asymmetrical cross profiles of valleys is due to:

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

(3 degree)

5-A drainage basin is .....

- a- The length of a large river.
- b- A lake or ocean into which a river drains.
- c- The lowest level a river can erode
- d- The total area drained by a stream and its tributaries.

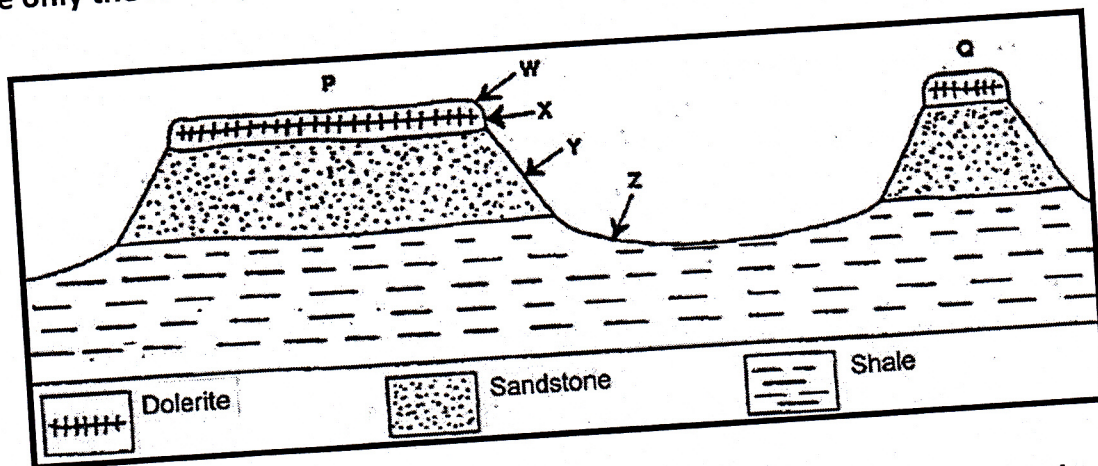
(3 degree)

6- What is a watershed?

- a. It's a water bed.
- b. It collects precipitation, which coalesces to form rivers.
- c. It's a shed filled with water.
- d. None of the above

7- Refer to the figure below showing a landscape found in Africa. Choose the answer and write only the letter (a- d) next to the question number.

(5 degree)



i- The landscape illustrated in the figure above is associated with .....rock.

- a- Massive igneous
- b- Horizontal sedimentary
- c- Tilted igneous
- d- Tilted sedimentary

ii- Landform P is a .....

- a- Mesa.
- b- Cuesta.
- c- Butte.
- d- Knoll

iii- Slope element Y is the .....

- a- Crest.
- b- Cliff.
- c- Talus.
- d- Pediment.

iv- Landform Q is a .....

- a- Hogback
- b- Cuesta.
- c- Butte.
- d- Homoclinal ridg.

v- The landscape is typical of .....regions.

- a- Humid and hot
- b- Dry and hot
- c- Humid and cold
- d- Dry and cold

8- Inversion of topography means:

(6 degree)

A- .....

Such as: ..... and/or

B- .....

Such as: .....

(3 degree)

9. A mesa is .....

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

10- The common topographic expressions of gently dipping strata are:

(4 degree)

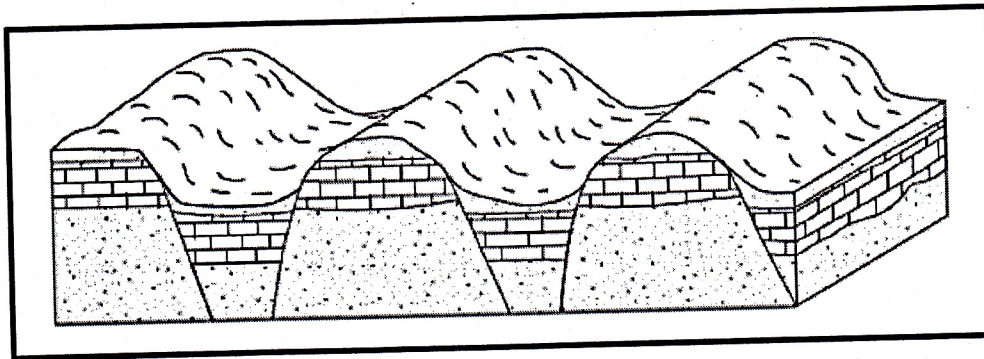
a) .....

b) .....

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

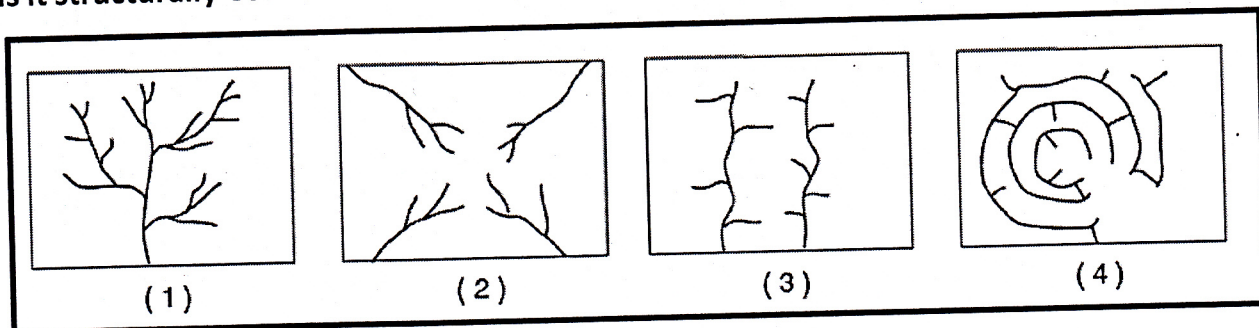
11- The block diagram below shows a region that has undergone faulting.

(5 degree)



Which map shows the stream drainage pattern that would most likely develop on the surface of this region? .....  
and why? .....

Is it structurally Controlled or No? .....



12- Which of these is NOT a way that landforms are made?

(3 degree)

- tectonic plates pushing against each other
- a river wears away the rocks and soil from one place and moves them to another place
- bright sunlight and water vapor heat up the earth

GOOD LUCK

Prof.Dr. Ahmed Reda El-Younsy





Geology Department – Level Two Students – January 2015  
(GP235) – MINERALOGY - Time: 1 Hour - (25 Marks)

**CHOOSE THE CORRECT ANSWER OF THE FOLLOWING**

1. Which is a halite mineral? a- Fluorite b- Calcite c- Gypsum
  2. Which is a carbonate mineral? a- Dolomite b- Chalcopryrite c- Apatite
  3. Which is a sulfate mineral? a- Gypsum b- Pyrite c- Spinel
  4. Which is a native mineral? a- Gypsum b- Graphite c- Quartz
  5. Which is a sulfide mineral? a- Pyrite b- Gold c- Feldspar
  6. Mineral of the upper mantle is: a- Olivine b- Pyroxene c- Garnet
  7. Olivine is formed in: a- mantle b- core c- crust
  8. Olivine is changed during metamorphism into:  
a- Talc b- Carbonates c- Serpentine mineral d- All of the minerals
  9. Which is an oxide mineral? a- Hematite b- Galena c- Platinum
  10. Examples of isomorphous mineral a- Foresterite b- Fayalite
  11. Examples of polymorphism mineral  
a- Quartz b- Tridymite c- Cristobalite
  12. Which is a silicate mineral? a- Olivine b- Calcite c- Magnetite
  13. Platinum (Pt) has density: a- 21.46 b- 11 c- 19.3
  14. Gold (Au) is found in association with:  
a- Pyrite b- Chalcopryrite c- Arsenopryrite d- All of the above
  15. Foresterite has chemical composition:  
a-  $Mg_2 SiO_4$  b-  $Fe_2 SiO_4$  c-  $(Fe Mg)_2 SiO_4$
  16. Fayalite has chemical composition:  
a-  $Mg_2 SiO_4$  b-  $Fe_2 SiO_4$  c-  $(Fe Mg)_2 SiO_4$
  17. Olivine has chemical composition:  
a-  $Mg_2 SiO_4$  b-  $Fe_2 SiO_4$  c-  $(Fe Mg)_2 SiO_4$
  18. Olivine is  
a- small b- rounded crystals c- no cleavage d- all of the above
  19. Hornblende occur in  
a- granite b- gabbro c- rhyolite
  20. Olivine occur in:  
a- Granite b- Dunite c- Rhyolite
- Indicate by the sign ( ✓ ) or ( X ):-
21. General formula of mica group  $(Si_4O_{10})^{4-}$  ( )
  22. Fluorite is halide ( )
  23. Serpentine group are polymorphs ( )
  24. Feldspar is a common raw material in the production of ceramics ( )
  25. The extinction angle is an optical characteristic and varies with the Albeit content ( )



1st Semester Final Written Exam, 2014  
for Petroleum Geology Students

Course: **Principals of Stratigraphy, PG211**

Time Allowed: **2 Hrs**

**Part I (25 degrees)**

**1- Answer the following question: (10 Marks)**

- Defining stage boundaries is an important stratigraphic issue that is necessary for ratifying a given global boundry stratotype section (GBSS), discuss this statement and state how can stable carbon isotopes be applied in this context.

**2- Choose the correct and the wrong statements from the following: (5 Marks; 1 Mark each)**

- A- Allostratigraphic units are applied to define sequence boundaries.
- B- Gamma ray log is used to discriminate between sandstones and shales.
- C- Core samples are more expensive than cuttings (ditch) samples.
- D- Original continuity cannot be seen across valley sides.
- E- Fossils are the basis for biostratigraphy.

**3- Write briefly on Two only from the following: (10 Marks; 5 Marks each)**

- A- Law of superposition and its stratigraphic evidences.
- B- Systems tracts.
- C- Species overlap through space and time.
- D- Direct and indirect methods for subsurface analysis.
- E- Concurrent Range Zone.

**Part II (25 degrees)**

**1- Affirm if the following statements are correct or wrong, and correct the wrong one: (5 Marks; 1 mark each)**

- A- Chemical remanence magnetism (CRM) dates from time of alteration and is younger than date of original formation of rock and than TRM and DRM.
- B- A chronostratigraphic unit is a body of rocks that includes all rocks formed during a specific interval of geologic time.
- C- Type locality is the designated exposure of a named stratigraphic unit.
- D- Geologic periods marks major cycles of marine transgression and regression with pronounced unconformities separating the systems.
- E- Magnetostratigraphy is the correlation and dating of marine sediments and sedimentary rocks through the use of trace-element concentrations, molecular fossils, and certain isotopic ratios that can be measured on components of the rocks.

**See next page** →



**2- Define FIVE only of the following: (5 Marks; 1 Mark each)**

Geologic time scale, magnetostratigraphy, stratotype, pinch-out contact, Curie point, lithodemic unit.

**3- Choose the correct answer: (5 Marks; 1 Mark each)**

A- In chronostratigraphic classification, names of currently recognized **systems** indicate:

- 1- tribal      2- chronologic      3- lithologic      4- geographic

B- For the historically, well-known phosphate of the Dow rock unit, which naming is correct?

- 1- Dow Phosphate    2- Dow Phosphate Formation    3- Dow Formation    4- All of them

C- Stratotypes in subsurface sections are designated based on:

- 1- exposures in mines    2- sections in tunnels    3- sections in wells    4- All of them

D- A rock unit of a Triassic and Jurassic age means that this rock unit has:

- 1- Either Triassic or Jurassic age    2- One part Triassic and one part Jurassic age  
3- Both Triassic and Jurassic age, but undifferentiated    4- Only Jurassic age

E- Stratigraphic units bounded by unconformities are termed:

- 1- Geochronometric    2- Allostratigraphic    3- Pedostratigraphic    4- Diachronic

**4- Write briefly on TWO only of the following: (10 Marks; 5 Marks each)**

A- Remanent magnetism.

B- Characters for distinguishing formations from each others.

C- Chronostratigraphic correlation.

انتهت الأسئلة

**Examiners: Prof. Magdy S. Mahmoud, Dr. Amr S. Deaf**

*Good Luck*