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جامعة أسيـــوط–كلية العلوم
قسم الجيولوجيا

الفصل الدراسي الأول
٢٠١٥/٢٠١٤

G 327: Sedimentology & Depositional Systems

Part 1: Sedimentology (25 Marks)

Answer five questions only:

1. Describe briefly the texture and composition of the following rocks:
   a- Calcareous oligomectic conglomerate
   b- Grey wacke

(5 Marks)

2. What is the difference between heavy minerals and light minerals? Why we study the heavy minerals?

(5 Marks)

3. a- What is the difference between mudrocks and shale?
   b. Mention only the names of the clay mineral groups

(5 Marks)

4. a- What are the common minerals that constitute the carbonate rocks?
   b. Describe briefly the texture and composition of:
   Oosparite
   Pelsparite
   Biomicrite

(5 Marks)

5. What are the evaporite rocks? Mention their mineralogical composition.

(5 Marks)

6. a. What are the phosphorite deposits? Write a brief account on their mineralogical composition.

(5 Marks)

أ.د. محمد احمد سليمان

أنظر خلفه

Part 2

Answer only Five questions out of the following

1. Discuss in detail the following items (5 marks): ·

A. Paleocurrent patterns as a diagnostic defining parameter of a sedimentary facies (2.5 marks).

B. The three defining parameters of a sedimentary environment (2.5 marks).

2. True or false (5 marks):

A. Sedimentary environments of net erosion are typically subaqueous and consist largely of the mountainous areas of the world (One mark).

B. It appears that depositional sedimentary environments are predominantly terrestrial (One mark).

C. alluvial environment is an example of a shoreline/transitional environment (One mark).

D. Larger grain sizes like gravels and sands tend to show a calm energy environment (One mark).

E. a sedimentary facies is a part of the earth surface which can be defined and distinguished from others by its physical, chemical and biological characteristics (One mark).

3. Discuss in detail the alluvium of meandering rivers (5 marks).

4. A braided river channel (5 marks).

A. usually has a relatively narrow and deep cross section.

B. usually is the most common type of natural channel in the world.

C. usually is dominated by suspended load sediment types.

D. usually is found only in arid climate regions.

E. usually has a steeper longitudinal gradient than a meandering stream.

5. Write briefly on the basic types of delta (5 marks).

6. Which of the following is NOT true about the carbonate compensation depth (CCD) (5 marks):

A. it is at a greater depth in areas with higher concentrations of CO_2.

B. it has an average depth of 4500 m.

C. it deepens where there is increased biological productivity.

D. it is the depth at which preserved calcareous material falls below 20% of the total.

E. none of the above.

د.عبدالله موسي العياط

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Assiut University *Faculty of Science* *Geology Department*	**Final Exam** **First Semester 2014-2015**	
Time: 2 hrs	*Subject: Core Analysis (PG365) Exam for Petroleum Geology Group Students*	*Total 50 marks*

مطلوب تسليم ورقة الاسئلة مع كراسة الاجابة

Answer the following questions:

1) Select th **orrect answer(s):** *(8 marks)*

i. The osity value between 7 – 14 % is .....?
(a) p r (b) good (c) Very good (d) fair (e) excellent (f) Negligible

ii. If oi and water exist, the oil wets strongly the formation when contact angle is:
(a) 0 - 30 (b) 30 - 90 (c) 150 -180 (d) 90 -150

iii. Which of the following rocks has the highest permeability?
(a) an uncemented sandstone (b) a cemented sandstones
(c) an unfractured shale (d) all of these rocks have approximately the same permeability.

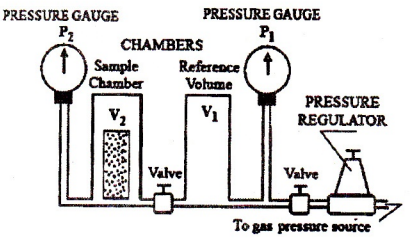
iv. Capillary pressure varies on the base of:
(a) pore diameter (b) temperature (c) interfacial tension
(d) density (e) wettability (f) all of the above.

v. The correct relation between hydrostatic pressure (p_f), litho-static pressure (p_g) and overburden pressure (p_{ob}) is
(a) $p_f = p_{ob} - p_g$ (b) $p_{ob} = p_g - p_f$ (c) $p_{ob} = p_g + p_f$ (d) $p_{ob} = p_g / p_f$

vi. If an oil and water are brought into contact in reservoir, the value of Interfacial tension will be in the range:
(a) 15 - 35 dyne/cm (b) 0 - 15 dyne/cm (c) 35 - 55 dyne/cm
(d) more than 72 dyne/cm (e) none of the above.

vii. The shrinkage in volume of the material with a unit increase in pressure is called
(a) Surface tension. (b) Wettability. (c) Compressibility. (d) Resistivity.

viii. The given diagram is .....
(a) An extraction unit
(b) Gas expansion porosimeter
(c) Coring tool and core Barrel
It is used for .....



2) What is the units of the following core rock properties : *(3 marks)*

(a) Hydrostatic pressure		(b) Resistivity		(c) Gamma radiation	
(d) Compressibility		(e) Water saturation		(f) Relative permeability	

3) Put true (√) or false (X) with corrections: *(4 marks)*

a) Grain size has a large effect on permeability, but has no bearing on porosity ( ).
b) Fracturing and solution generally reduce the permeability, while compaction and cementation tend to increase the permeability ( ).
c) The most accurate method of measuring the permeability of a formation is through well logging ( ).
d) Effective porosity is sometimes equal to total porosity in case of connected or dead end pores ( ).

بقية الأسئلة فى الصفحة التالية

(2)

4) Match the following names in column 1 with the definitions in column 3. Place the letter of definition in column 2: *(4 marks)*

1	2	3
wettability		**a.** fluid flow process in which wetting fluid decreases in largest pores
saturation		**b.** the energy per unit area at the surface between solid-fluid
drainage		**c.** fluid flow process in which the saturation of the wetting phase increases and the non-wetting phase saturation decreases
capillary pressure		**d.** fraction of pore space occupied by a particular fluid (immiscible phases)
irreducible saturation		**e.** the pressure required to force wetting fluid into capillary pores
surface tension		**f.** pressure difference existing across the interface separating two immiscible fluids in capillaries
interfacial tension		**g.** tendency of one fluid to spread on or adhere to a solid surface in the presence of other immiscible fluids
imbibition		**h.** the limiting value in reduction of the wetting phase saturation
		i. fluid flow process in which the saturation of the wetting fluid decreases and the non-wetting fluid saturation increases
		j. force per unit distance at the surface between phases

5) Write short notes on the following subjects: *(15 marks)*

a) Three applications of core-gamma surface logs.
b) Significance of measuring core sample compressibility.
c) Major features recorded in core lithology analysis.
d) Advantages and types of sidewall coring systems.
e) Factors affecting permeability.

6) Explain shortly what you understand by the following: *(8 marks)*

a) Movable oil saturation.
b) Formation resistivity factor.
c) Effective permeability.
d) Capillarity effect on transition zones.

7) Solve the following problem: *(4 marks)*

An oil-bearing core sample recovered from a clean sandstone formation has a porosity of 24% and an irreducible water saturation of 18%. Estimate the permeability of the core sample using Timur (1968) equation and compare the result with that obtained from Wyllie-Rose (1950) equation?

8) Write the relations used for estimating the following (define parameters) : *(4 marks)*

a) Permeability using Coates (1980) equation.
b) Pore compressibility.
c) The fluid mobility in core sample.
d) Capillary force.

انتهت الأسئلة

Good Luck !!

Prof. Dr. Awad A. A. Omran

(1)

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

First Semester Final Examination 2014/2015

Subject: Course No. 319G (Chemostratigraphy) Time allowed: one hour

Students: Third Year Students Date: Jan.,10 , 2014

Examiner: Dr. Mamdouh F. Soliman

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Select or write the correct answer for the following : (25 marks, one mark for each, 5 marks for No. 21))

1- Meteorites are made up, at least in part, of small glassy spheres (1-2 mm in diameter) of dark Mg and Fe- rich silicate minerals particularly olivine and pyroxene are called:

A- Stony meteorites B- Achondrites C-Iron meteorites

2- Achondrites are a type of:

A) Chondrites. B) Stony meteorites C) Stony-iron meteorites D) Iron meteorites

3- *Siderospehre*

A. is composed of silicates. Its inner part has a gabbroic bulk composition

B. is composed to the intermediate layer of the Earth between the iron core and the silicate crust.

C. corresponds to the Earth's core and iron meteorites and contains 90 % iron, 8 % nickel, and 2 % other metals

4-Mention five elements of Mixed character (i.e. chalcophiles and lithophiles)

5-Classifiy these elements into chalcophiles, lithophiles and siderophiles:

Mg, Mn, Pt, Na, Ba, As, Zr, Ag, Si, Ir, pb, Pd, V, Os, Zn.

6-Distal ejecta are those ejecta that occur at considerable distances from the source crater

A. > 5 crater radii from the crater rim

B. < 5 crater radii from the crater rim

C. = 3 crater radii from the crater rim

7-Evidence of shock metamorphism at the k/T boundary are the existence of the following shocked minerals Except:

A. quartz

B. feldspar

C. zircon

D. chromite

(2)

8-Which one of the following is NOT typical of " K/T event"
Spinels at the K/T boundary are
A. highly oxidized (high Fe^{3+} content)
B. high Ni (and Co) contents
C. high Cr and Ti abundances.

9- The net effect of the influxes of black carbon, CO and CO2 resulted from the K/T impact is ;
A. the global warming of the earth's surface
B. The sea level fall
C. Both

10- Increased Ti/Al ratio would reflect
A. relative sea-level rise
B. relative sea-level fall
C. Both

11-The increased Si/Al ratio reflects
A. the increased of detrital Si that bound in aluminosilicates
B. Increased input of biogenic silicon
C. relative sea-level fall

12-Detrital and biogenic Si can be easily discriminated, by using
A. Ca vs. SiO_2
B. Zr vs. SiO_2
C. Fe vs. SiO_2

13- $\delta^{18}O$ =----------

14- During precipitation, $H_2{}^{16}O$ **condensates more rapidly than** $H_2{}^{18}O$
A. True
B. False

15-isotope geochemists measure departures of the $^{18}O/^{16}O$ **ratio from a laboratory standard using:**
A. the Standard Mean Ocean Water (SMOW)
B. Cretaceous Peedee Formation belemnite (PDB)

16-During usual diagenetic processes (either involving meteoric water or pore water of marine origin, and proceeding at increasing temperature) the $\delta^{18}O$ **values of limestone typically**
A. Decrease
B. Increases
C. Remain constant

17-The zone of Sediments of the Late Paleocene Thermal Maximum (LPTM) is characterized by:
A. Low $\delta^{18}O$ values
B. High $\delta^{18}O$ values

18- fractionation of the two Carbon isotopes lead to incorporation of light carbon into

A. organic matter
B. Carbonate precipitates

19- Planktonic foraminifera have more ^{13}C incorporated in their shells (more +ve $\delta^{13}C$) than the benthic components (more -ve $\delta^{13}C$)

A. True
B. False

20- The Paleocene-Eocene Thermal Maximum (PETM) at Gabal Dababiya section (GSSP section) is characterized by:

A. Low $\delta^{13}C$ and $\delta^{18}O$ values
B. High $\delta^{13}C$ and $\delta^{18}O$ values

21-Give possible explanations of the following geochemical signatures in stratigraphic record: (5 marks)

A. Sharp decrease in $\delta^{18}O$
B. Sharp decrease in $\delta^{13}C$
C. Enrichment of chalcophile elements
D. Present of Bauxites
E. Write the chemical formula of: Kaolinite, Sphalerite and Orthoclase

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انتهت الأسئلة
مع أطيب الأمنيات بالتوفيق
أ.د. / ممدوح فراج سليمان

Assiut University Faculty of Science Geology Department		January, 2015 Time: 2hours

First Semester Final Exam

Subje' Geophysical exploration for oil and gas (351 PG)
Stude s: Fourth Level Petroleum Geology Students.

Answ r the following questions:-

I- Inc icate by the mark (X) or (√) and correct the wrong sentence(s): (20 marks)

1- ( ) Bright Spot is negative amplitude anomaly in seismic record.

2- ( ) Ghost reflections represent an important hydrocarbon indicator.

3- ( ) Amplitude of the reflected waves increases as acoustic impedance contrast increases.

4- ( ) Dip moveout is measured as the difference in time between t_x and t_0.

5- ( ) Usually in deeper clastic rocks, sands have higher acoustic impedance than older shale.

6- ( ) As the vertical seismic velocity gradient increases, the curvature of the raypath increases.

7- ( ) The source wavelet that is sent into the Earth convolved with the Earth's reflectivity series to produce the recorded seismic trace.

8- ( ) Polarity Reversal indicates the presence of faults.

9- ( ) Group velocity is the apparent velocity of successive subsurface layer.

10- ( ) Kerogen is the substance that generates oil, gas and coal.

Answer ONLY ONE of the following questions (with illustration)

I- Write about (THREE ONLY) of the following (30 marks, 10 each)

1- Different types of oil traps.

2- Normal moveout and how it can be used in velocity determination.

3- Secondary waves generated at the interface between layers.

4- Seismic noise (Random and coherent) and how they can be eliminated during acquisition and/or seismic processing.

II - Write about (THREE ONLY) of the following equations : (30 marks, 10 each)

1- Reservoir impedance contrast and direct hydrocarbon indicators.

2- Dix Interval and average velocities

3- Time distance curve for reflecting dipping interface.

4- Characteristics of the raypath in anisotropic medium.

Examiner: **Prof. Dr Hamza A. Ibrahim.**

Prof. Dr Assem El-Haddad.

GOOD LUCK

Assiut University
Faculty of Science
Geology Department

January, 2015
Time allowed: 2 hours

First Semester Final Examination
Subject: Seismic Exploration and Earthquake Seismology (350G)
Students: Third Year Geophysics Students

ملحوظة هامة: الامتحان في ورقتين

PART ONE: SEISMIC EXPLORATION (25 mark)

Answer the following questions:

I- Indicate by the mark (X) or (√) and correct the wrong sentence(s): (10 marks)

1. ( ) Seismic prospecting depends mainly on the change of elastic properties of the medium.
2. ( ) Shear wave is the fastest kind of the seismic waves.
3. ( ) Group velocity is the velocity of the successive subsurface layers.
4. ( ) In anisotropic medium, the raypaths are smooth curved lines.
5. ( ) Head waves can be generated and recorded near the shot point.
6. ( ) In refraction method, the detected depth is directly related to the length of the measured profile.
7. ( ) Reflection is taking place when the acoustic impedance is varied at both sides of the interface.
8. ( ) Multiple reflection decreases of the recorded reflection time.
9. ( ) Intercept time is the actual time for refracted waves recorded near the shot point.
10. ( ) Reflected waves are usually recorded as first break in the seismograms.

II-Answer ONLY ONE of the following questions:

1- Answer ONLY TWO of the following questions: (15 marks)

a) Derive equation for the time distance curve of the single horizontal refracting interface and find the depth to this interface.

b) Write about the generated secondary waves at interface between two layers in all cases of mediums.

c) Prove Snell's law for reflection.

2- Answer ONLY TWO of the following questions: (15 marks)

a) Estimate the relation between the vertical velocity gradient and the ray path curvature.

b) Prove that the refraction time distance curve is tangent to the reflection time distance curve at the critical distance.

c) Deduce expression for the normal moveout and use it for calculating the seismic velocity.

Examiner: Prof Dr. Assem El-Haddad

Good Luck

Assiut University
Faculty of Science
Geology Department

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

Second Semester, Third Level Final Examination

Time: 60 minutes	Total marks: 25	Earthquake Seismology and Seismic Exploration (G350)	Jan., 2015

Part Two: Earthquake Seismology
(25 marks)

Answer all the following questions:

1. Explain the basics of spring based seismic inertial sensor with highlighting the equation of motion of the seismometer mass as a function of the ground displacement. (10 marks)

2. Derive the equation of seismic impedance changes. (7 marks)

3. Describe the liquefaction mechanism? (8 marks)

End of questions

GOOD LUCK

Dr. Mostafa Thabet Mohammed

II- Historical Geology (20 marks)

السؤال الأول: (5 درجات)

Choose the correct answer: (0.5 mark each)

i- The appearance of flowering plants (Angiosperms) was during ..... Period
(a) Cretaceous (b) Paleogene (c) Silurian (d) Carboniferous

ii- The geochronologic unit Epoch can be subdivide
(a) System (b) stage (c) Age (d) Period

iii- The Paleozoic does not include the .....
(a) Ordovician (b) Cretaceous (c) Mississippian (d) Permian

iv- Most periods in the geologic time scale are named for .....
(a) geographic localities (b) fossils (c) catastrophic events d- all of these

v- Plant associations mean.....
(a) Fauna (b) biota (C) flora (d) Phyla

vi- The age of the Ediacaran fossils is .....
(a) late Archean (b) late Paleozoic (c) early Proterozoic (d) late Proterozoic

vii- Paleozoic Era marked by ..... glaciation episodes.
(a) two (b) three (c) four (d) five

viii- Hadean rocks contain .....
(a) some fossils (b) rare fossils (d) abundant fossils (c) no fossils

ix- ..... are ancestors of reptiles.
(a) Mammals (b) Amphibians (c) Birds (d) Dinosaurs

x- When did Pangaea break up?
(a) Proterozoic (b) Archaeozoic (c) Mesozoic (d) Cenozoic

السؤال الثاني: (5 درجات)

Compare between **Only TWO** of the following: (2.5 marks each)

i- Hercynian and Nevadan orogenies.
ii- Old Red Sandstone and New Red Sandstone facies.
iii- The climate in Archean and Proterozoic times.

السؤال الثالث: (5 درجات)

Discuss **Only TWO** of the following: (2.5 marks each)

i- The formation of Red Sea.
ii- The closure of Iapetus Ocean.
iii- The extinction event at the Cretaceous/Paleogene boundary.

السؤال الرابع: (5 درجات)

1- Write the derivation of **Only FOUR** of the following geologic-time units: (2 marks)
Triassic – Carboniferous – Eocene – Ordivician – Pleistocene

2- Tabulate the rock-forming fossils of the Paleozoic Era. (3 marks)

أنتهت الأسئلة - مع أجمل الأمنيات بالتوفيق والتفوق،

أ.د/ ناجح عبدالرحمن عبيدالله

د/ عمرو سعيد ضيف

(١د)

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

بسم الله الرحمن الرحيم

امتحان المستوى الثالث بكلية العلوم شعبة الجيولوجيا

المادة: الحفريات الدقيقة والجيولوجيا التاريخية

(315G) (Micropaleontology & Historical Geology)

دور يناير 2015/2014م الدرجة: 50 درجة الزمن: ثلاث ساعات

I- Micropaleontology (30 marks)

الأمتحان يتكون من ثلاث صفحات

أجب عن الأسئلة الأتية

السؤال الأول: (5 درجات)

1- Compare between the fresh water and marine Ostracoda in: (3 marks)
i- Shape of carapace. (1 Mark) ii- wall structure (1 Mark)
iii- Ornamentation (1 Mark)

2- Discuss the life cycle of foraminifera. (2 marks)

السؤال الثانى: (5 درجات)

1- Choose the correct answer for the following: (0.5 mark each)

i) Micropaleontology concerns microscopic remains of ..... organisms.
(unicelluler – multicelluler – skeletal fragments of macro-fossils– all of these)

ii) One of the following is not example of reef-building fossils.
(Nummulites– Fusulina – Marginopora – Textularia)

iii)..... are remains of extinct animal group.
(Conodonts – Radiolaria – Spores – Ostracoda)

iv) The reproduction of planktonic foraminifera is by .....
(sexual – asexual – both sexual & asexual – non of these)

v)..... foraminifera can preserve in deep marine environment.(calcareous – chitenous – agglutinated – all of these)

2- Illustrate by drawing **Only ONE** of the following: (2.5 marks)
i) Types of conodonts. ii) Hinge types in ostracods.

السؤال الثالث: (5 درجات)

Explain **Only TWO** of the following: (2.5 marks each)
i) The effect of alkalinity on the foraminifera.
ii) The relationship between the depth and the occurrence of these radiolarians skeletons.
iii) The oceanic divisions according to the penetration of light.

(2)

السؤال الرابع: (5 درجات)

Mark the correct and the wrong statements, and correct the wrong: (1 mark each)

i- Chitinozoan walls are resistant to oxidation, thermal alteration, tectonism and recrystallization of the rock matrix, and thus they have a particular value to biostratigraphy and thermal maturity studies.

ii- Fossil spore and pollen grains share more or less the same morphological features except that of wall structure, type & position of aperture.

iii- For classifying fossil dinoflagellates, morphology of the cyst is a very important criterion.

iv- Acritarch assemblages are only confined to nearshore marine conditions.

v- Artificial "non-biological" classifications of spores and pollen grains are useful for post-Triassic material.

السؤال الخامس: (5 درجات)

Choose the correct answer: (1 mark each)

i- Informal groupings (classification) of Acritarchs have been established on:
1- wall structure and morphology of vesicle 2- type of excystment opening
3- presence or absence of processes 4- ornamentation
5- all of them

ii- Palynological extraction procedures are complex but adaptable to rock types such as:
1- argillates and silicates 2- evaporites and carbonates 3- bitumen 4- Holocene peat
5- all of them

iii- Criteria used in classification of spore/pollen grains are:
1- type of aperture 2- grain shape 3- grain sculpture 4- grain size 5-all of them

iv- Chitinozoa were exclusively marine and can be found in:
1- basinal settings 2- a wide range of shelf environments 3- only in outer shelf slope
4- all of them

v- In an idealized life cycle of dinoflagellate, the stage of combined sexual and asexual reproductions is represented by:
1- motile diploid stage 2- motile haploid stage 3- motile diploid stage 4- all of them

السؤال السادس: (5 درجات)

Write briefly on **Only TWO** of the following: (2.5 marks each)

i- Amb, aperture, and symmetry in fossil pollen grains (with drawings).

ii- Standard palynological processing technique.

iii- Taxonomy, morphology, and ecology of Prasinophytes.

Assiut University **Date: January, 2015**

Faculty of science **Time allowed: 2 hours**

Geology Department

First Semester – Final Examination

Subject: Course No. G 333 (Igneous Rocks)

Students: 3rd year Geology (credit system)

I - Answer the following question:-

Write on the main characteristic features of:

Peridotites – Calcalkaline Basalts – Trachytes – Granites **(12.5 Mark)**

I I -Answer THREE Only of the following questions:-

(Figures must be drawn whenever possible)

1- **A- Write briefly about three different types of common structures formed from basic magma?**

1- **B- On what basis are igneous rocks classified?**

(12.5 Mark)

2- **A- In one region to different volcanic bodies are found along the bedding planes . What are these bodies? and how can you discriminate between sill and lava flow?**

2- **B – By two – component system of solid – solution type, how do liquids and associated mineral solids vary in composition during crystallization?**

(12.5 Mark)

3- **A- Describe the mechanism of formation for each of three textures produce from acidic magma cools and crystallizes to form igneous rocks?**

3- **B- Once a parental magma is created, how can its composition change so as to yield a sequence of evolved compositions in a magma series?**

(12.5 Mark)

4- **A- Which factors affect grain sizes and types of textures in igneous rocks?**

4- **B- Illustrate the following terms:-**

- **Composite dyke and multi dyke**
- **Eutectic point and Eutectic line**
- **Parent magma and primary magma**
- **Univariant point and Bivariant point**

(12.5 mark)

Assiut University
Faculty of Science
Geology Department

Date: 19/1/2015
Time: 2 hours

Principles of Structural Geology (345 G)

Answer three questions only <u>starting with the first one</u> (Use drawing when possible):

1- Compare between the pairs of the following concepts: **(20 marks)**

a) Similar folding - Parallel folding
b) Monocline structure - Structural terrace
c) Chevron folds - Kink folds
d) Flexture folding -Shear folding
e) Recumbent anticline - Recumbent syncline

2- List the different types of folds and the main components used in their classification. **(15 marks)**

3- Summarize the main characteristics of fault rocks. **(15marks)**

4- Explain shortly the main differences between translation gliding and twin gliding. **(15 marks)**

Good Luck,,,

Prof. Dr./ Ali A. Khudeir

(١)

Assiut University
Faculty of Science
Geology Department

جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

First Semester, Final Examination
For Third Level Students (two pages)

Time: 2 hours	Total marks: 50	Gravity and Magnetic Exploration (G351)	Jan., 2015

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

a) A ferromagnetic behavior of the earth materials disappears at temperatures above the Curie temperature.
b) Localized, short wavelength gravity anomalies can originate only from shallow density inhomogeneity.
c) Magnetic susceptibilities of sedimentary rocks are higher than basic rocks.
d) Higher than average density bodies will cause a negative gravity anomaly.
e) Magnetic field survey should be cancelled when there is a magnetic storm.
f) The range of gravitational acceleration at the Earth's surface ranges from approximately 9.78 ms^{-2} at the poles to 9.83 ms^{-2} at the Equator.
g) Gravity alone cannot distinguish between a strong density contrast at depth and a more diffuse contrast shallow.
h) 99% of the Earth's magnetic field originates from the interaction of the Earth's ionosphere with the solar wind.
i) Gradiometer survey in gravity or magnetic method is best suited for near surface targets.
j) Alkali vapor magnetometer has a measurement accuracy of 0.01 to 1 nT.

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

a) Free Air anomaly
b) Low and high-pass filters
c) Bouguer anomaly
d) Declination
e) The geoid
f) Inclination
g) Magnetic susceptibility
h) Gradiometer survey

(2)

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

a) List four different sources of changes in Earth's magnetic field.
b) What are the three components of Earth's magnetic field?
c) Name the reasons why the actual value of gravitational acceleration (g) measured at a particular place is not the same as the theoretical value.
d) List four different types of remanent magnetization.
e) List four different applications of gravity method
f) Discuss the field procedure and different types of land magnetic survey.
g) List four of the general guidelines used in interpretation of magnetic data.
h) Discuss the idea of ambiguity in gravity data interpretation and how it can be resolved.
i) List three different applications of magnetic method.
j) What is the difference between upward and downward continuation in local-regional separation of gravity anomalies?
k) What are the advantages and limitations of magnetic method?
l) Explain with drawing the Nettleton's method for density estimation in gravity method.
m) Describe the three types of magnetic behavior of earth materials with examples?
n) What is the difference between induced magnetization and remanent magnetization?
o) What is the difference between forward and inverse modeling in magnetic interpretation?

GOOD LUCK Dr. Gamal Zidan

(١)

Geology Department Faculty of Science Assiut University		Time: 2 hours January 2015 First-term final examination

Subject: Sedimentary basins and Sedimentary environments (335G)

Students: 3rd level of Geology- First term class (2014-2015)

****

Answer only Ten questions out of the following (50 marks)

1. Write short notes on the three defining parameters of a sedimentary environment (5 marks).

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2. Trace fossils (biogenic sedimentary structures) are used as facies diagnosis because (5 Marks):

a. trace fossils occur in situ and are not transported from outside the sedimentary basin.

b. recent and ancient sediments show that various assemblages of trace fossils are specific to environments and have changed little through geological time.

c. it is not always easy to be sure that a fossil lived in or on the sediment in which it was buried.

d. both (a) and (b). **e**. None of the above.

---

3. 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.

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.

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.

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.

e. sedimentary basins are separated from another by raised linear areas termed arches, paleohighs, schwelle, or positive areas.

---

4. Which of the following features in a sedimentary rock can be used to interpret its depositional environment **(5 marks):**

a. sedimentary structures **b**. types of fossils

c. the types of minerals (such as halite or gypsum)

d. the size, shape and surface texture of the sedimentary grains

e. all of the above features can be used to interpret depositional environment.

f. both (**a**) and (**b**). **g**. Actually, none of the above features can be used to interpret depositional environment.

بقية الأسئلة في الصفحة التالية

5. A sedimentary environment is defined as…….. ((5 marks)

a. a part of the earth's surface which could be distinguished from other parts by unique physical, chemical and biological parameters.

b. A sedimentary environment is the product of a depositional facies, a special kind of sedimentary environment.

c. A sedimentary environment is defined as any aerially restricted part of a designated stratigraphic unit which exhibits characters significantly different from those of other parts of the unit.

d. all the above. **e**. both (**b**) and (**c**).

f. none of the above. **h**. both (**c**) and (**d**).

---

6. Continental environments include all of the following except……((5 marks):

a. lake beds. **b**. river beds. **c**. glacial deposits.

d. coral reefs. **e**. deltas.

---

7. Discuss in detail the environments of erosion, equilibrium, and deposition (5 marks).

---

8. Write briefly on the relationship between sedimentary environment and facies (5 marks).

---

9. True or false (5 marks):

a. the essential element of the sedimentary basin is tectonic creation of relief, to provide both a source of sediment and a relatively low place for the deposition of that sediment.

b. the sedimentary basin is a low area in the Earth's crust, of tectonic origin, in which sediments accumulate.

c. embayments are basins that are not completely closed structurally, but which open out into a deeper area.

d. the axis of a basin is a line connecting the lowest structural points of the basin, as in a synclinal axis.

e. a geosyncline is large troughlike or basinlike downwarping of the crust in which thick sedimentary and volcanic rocks accumulated.

---

10. Aulacogens are (5 marks):

a. the second, failed arm of a five-armed rift, two of whose arms continued to open to form an ocean basin. **b**. aulacogens start at the passive continental margin.

c. extending from the margins toward the open sea.

d. both (**a**) and (**c**). **e**. all the above. f. none of the above.

---

11. Discuss in detail the different methods by which the sedimentary basins are formed (5 marks).

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12. Write briefly on the following (5 marks):

a. trenches. **b**. pull-apart basins.

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Good Luck **Dr. Abdalla El Ayyat**

(١)

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريرى لطلاب المستوى الرابع جيولوجيا البترول
المادة: (Chrono- and Bio-stratigraphy, 316 GP)
الدرجة: 50 درجة 2015/2014م الزمن: ساعتان

الأمتحان يتكون من ثلاث صفحات

السؤال الأول: (15 Marks)

1- Write the types and the geologic ages of the following planktonic foraminiferal zones in the below figures. (15 Marks)

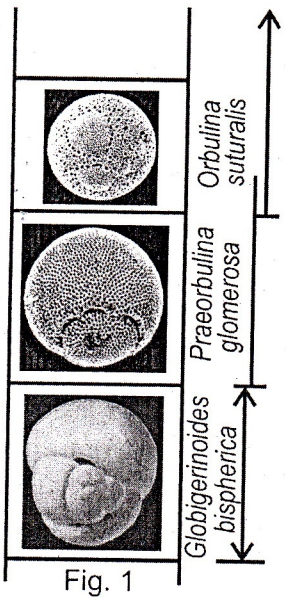

Fig. 1

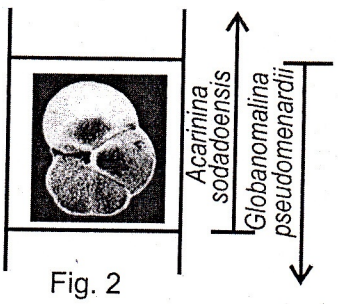

Fig. 2

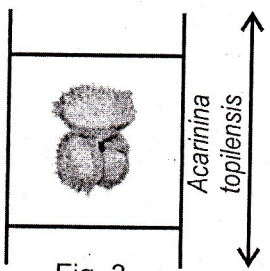

Fig. 3

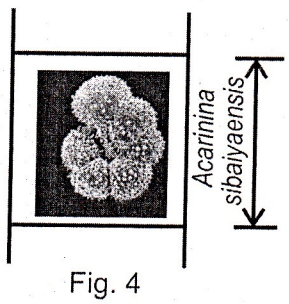

Fig. 4

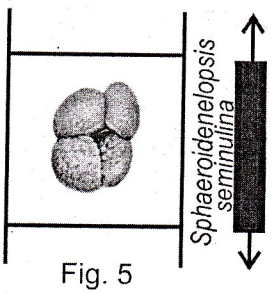

Fig. 5

السؤال الثانى: (15 Marks)

Choose the correct answer:

1- What was Pangaea?
   a- type of fossils b- a large, single landmass
   c- the original name for North America d- a geologic era

2- What types of animals dominate the Cenozoic Era?
   a- reptiles b- trilobites c- dinosaurs d- mammals

3- The longest section of Earth's history was.....
   a- Precambrian b- Paleozoic c- Neogene d- Mesozoic

4- The oxygen in Earth's atmosphere come from .....
   a- cyanobacteria b- rocks c- rocks d- plants

1 21

5- During the Hadean Eon of Earth's history, ...
a- there was no life b- angiosperms evolved
c- there was life everywhere d- vertebrates evolved

6- Biostratigraphy refers to .....
a- a relative dating method
b- a method used to compare fossils found at different sites
c- a method used to determine similarity in time levels
d- all of these

7- Mass extinction attributes to .....
a- an asteroid or comet impact b- wide-spread volcanic activities
c- sea level changes d- all of these

8- Land plants appeared during the ..... Period.
a- Cretaceous b- Sillurian c- Carboniferous d- Neogene

9- What is the name for an erosion surface that separates two sets of sedimentary layers with non-parallel bedding planes?
a- cross-bedding b- formation c- nonconformity d- angular unconformity

10- The Paleogene does not include the .....
a- Paleocene b- Oligocene c- Eocene d- Pliocene

11- All rock strata have biostratigraphic characteristics.
a- True b- False

12- The Cenozoic Era represents the shortest era within the geologic time scale.
a- True b- False

13- What supercontinent composed of all continental crust was produced by the end of the Proterozoic Era?
a- Pangaea b- Laurentia c- Gondwanaland d- Rodinia

14- The biostratigraphic different zoned boundaries mostly are conformable.
a- True b- False

15- Assemblage zone is characterized by one fossil.
a-True b- False

السؤال الثالث (10 Marks)

1- Discuss <u>three only</u> of the following: (6 Marks)
a- Mediterranean salinity crisis
b- Lazarus taxa c- Formation of the Red Sea
d- Formation of Himalayan Mountains

2- Write the biostratigraphic events for <u>two only</u> of the following chronostratigraphic boundaries: (4 Marks)
a- Cenomanian/Turonian boundary
b- Cretaceous/Paleogene boundary
c- Paleogene/Neogene boundary

(3)

السؤال الرابع (10 Marks)

1- Compare between two only of the following: (5 Marks)
   a- Caledonian and Laramadian orogenies.
   b- Ordovician and Silurian facies.
   c- Climate in Archean and Proterozoic times.

2- Write the derivation of five only of the following geochronologic units: (5 Marks)

a- Permian Period	b– Holocene Epoch	c– Triassic Period
d- Cretaceous Period	e- Oligocene Epoch	f- Devonian Period

تمت الأسئلة مع اطيب الأمنيات بالنجاح والتفوق

ا.د/ ناجح عبدالرحمن عبيدالله **د/ نصر أحمد عبدالمقصود**

تنبيه هام: الأمتحان الشفوى بعد الأنتهاء من هذا الأمتحان مباشرة

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الثالث بكلية العلوم شعبة جيولوجيا البترول

المادة: الحفريات الدقيقة (Micropaleontology & Palynology) (313GP)

دور يناير ٢٠١٤/٢٠١٥م　　الدرجة: ٥٠ درجة　　الزمن: ساعاتان

أجب عن الأسئلة الأتية

السؤال الأول:(١٠ درجات)

Compare between the Radiolaria and Ostracoda in:
1- systematic position (2 Marks　　2- wall structure (2 Marks)
3- shape of shells (2 Marks)　　4- mode of life (2 Marks)
5- environmental habitat (2 Marks)

السؤال الثاني:(١٠ درجات)

A- Discuss **two only** of the following: (5 Marks)
1- The relationship between the dissolved oxygen and the organic matter.
2- Hinge types in ostracods.
3- Habitats of benthic foraminifera.

B- Remark by (Yes) or (No), and give reason for your answer: (5 Marks)
1) Biota means plant organisms.
2) Benthic foraminifera live floating in the marine water column.
3) Oxygen is generated in the surface waters by photosynthesis only.
4) Calcareous shells of fossils are preserved below the CCD.
5) The wall structure of conodonts is made of silica.

السؤال الثالث:(٥ درجة)

Write on **two only** of the following:
1- The skeleton of Radiolaria. (2.5 Mark)
2- The effect of salinity on the distribution of foraminifera. (2.5 Mark)
3- Types of conodonts. (2.5 Mark)

السؤال الرابع: (١٠ درجات)

Write on **two only** of the following:
1- Life cycle in dinoflagellates. (5 Marks)
3- Colpi and pores in pollen grains. (5 Marks)
5- Effect of alkaline environmental on palynomorph preservation. (5 Marks)

السؤال الخامس: (٥ درجات)

State the effect of wind and river transport on the distribution of palynomorphs in the bottom sediments of the Lake Maracaibo.

السؤال السادس: (١٠ درجات)

Compare between **two only** of following:
1- Walls of spores and pollen grains. (5 Marks)
2- Relative and absolute abundance data sets. (5 Marks)
3- Monolete spores and monocolpate pollen. (5 Marks)
4- Peridinioid and gonyaulacoid dinoflagellates. (5 Marks)

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

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

Assiut University
Faculty of Science
Geology Department

Date: 23/1/2015
Time: 3 hours

Principles of Petrology (324 G)

Group (1)

Answer the following <u>two</u> questions using drawing when possible:

1) Write about the main processes by which magmas diversify and produce magmas of different compositions. **(20 marks)**

2) Write short notes on the following: **(20 marks)**
   a- Contact metamorphism
   b- Mylonites
   c- Migmatite structures
   d- Primary magma and parent magma

Group (2)

Answer <u>one</u> question only of the following using drawing when possible:

3) Summing up the structural features, nomenclature and optical properties of the pyroxene series. **(10 marks)**

4) Mention briefly the diagnostic optical properties of the mica minerals. **(10 marks)**

Good Luck,,,

Prof. Dr./ Ali A. Khudeir