

Jan. 17,2017

Time : 2h

Univ. of Assiut

Fac. Of Science

Dept. of Geology

Igneous Petrology (333 G.)

3 rd year

Answer THREE questions ONLY of the following:

1. Define briefly the following:

Eutectic point - Cotectic line - Magmatic assimilation. (16 ½ marks)

2. Write what you know about the different factors affecting the diversity of igneous rocks. (17 marks)

3. Give short note about the petrographic provinces and rock associations. (16 ½ marks)

4. Write on the main characteristic features of :
Peridotites – Basalts – Trachytes – Granites. (16 ½ marks)

Dr.M.E. Habib

**Final Examination
For Third Level Students (two pages)**

Time: 2 hours	Total marks: 50	Gravity and Magnetic Exploration (G351)	Jan., 2017
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A) Answer the following questions: (Ten marks total)

1. What are the similarities and differences between gravity and magnetic methods? (three marks)
2. Differentiate between: (two marks each)
 - a. Upward and downward continuation
 - b. Forward and inverse modeling
3. Discuss a case study that demonstrates the advantages of integrating gravity and magnetic survey. (three marks)

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

1. Geoid
2. Magnetic flux density
3. Bouguer anomaly
4. Magnetic susceptibility
5. Free air anomaly
6. Inclination
7. Isogenic
8. Diamagnetic materials

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

1. Air filled voids or cavities will result in a gravity low anomaly
2. Rocks with significant concentration of ferro or ferri-magnetic minerals have the highest values of magnetic susceptibilities
3. The regional gravity anomaly reflects a long wavelength and attributed to deep-seated crustal features.
4. Diurnal changes in magnetic data are due to the effect of radiation from sun on ionosphere
5. The gravity acceleration varies from the equator to the pole by almost 0.5 %.
6. The best time to conduct magnetic field survey when there is a magnetic storm.
7. For gravity and field survey the station interval should be smaller than the size of the anomalous feature
8. Gradiometer survey is best suited for short wavelength anomaly
9. Scintrix (CG-3) is classified as a unstable gravimeter whereas LaCoste Romberg is a stable gravimeter
10. Higher than average density bodies will cause a negative gravity anomaly.
11. Magnetic method can be used to detect UXO's and buried tanks



First Semester Examination
Historical Geology and Origin of Species (313G)
3rd Level students

PART ONE: HISTORICAL GEOLOGY

Answer the following questions.

First Question (10 marks).

- 1- The Paleogeographic history of the Paleozoic Era is not precisely known as for the Mesozoic and Cenozoic Eras, explain (3 marks).
- 2- Closes of the Tethys Sea during the Cenozoic caused an important geologic event, explain (4 marks).
- 3- Discuss the evolution of Earth's atmosphere (3 marks).

Second Question (5 marks).

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

- 1- Low of inclusions is a method to determine the rock age in a precise way..... ()
- 2- The Cascade Mountain range is the result of the Alpine–Himalayan Orogeny at the end of the Eocene..... ()
- 3- Fragmentation of Rodinia during Proterozoic giving rise the continents that existed at the onset of the Phanerozoic Eon..... ()
- 4- The northern part of Iapetus Ocean was closed as the result of Caledonian Orogeny..... ()
- 5- The Cordilleran Orogenic activity is related to the movement of the North American plate as it overrode the Farallon plate..... ()

Third Question (10 marks).

A. Define and give reasons for TOW only of the following (4 marks).

- 1- Laramide Orogeny.
- 2- Devonian Mass Extinction.
- 3- Ice ages during Cenozoic.
- 4- Sonoma Orogeny.

B. Give the exact ages for THREE only of following (3 marks)

- 1- *Basilasaurus*
- 2- *Archaeopteryx*
- 3- *Lepidodendron*
- 4- Stromatolites
- 5- *Hipparion*
- 6- *Morozovella velascoensis*

C. Compare between TWO only of the following (3 marks)

- 1- The Ediacaran and Burgess Shale fauna.
- 2- Acadian and Ural Orogenies.
- 3- Prokaryotes and Eukaryotes.

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Dr.M.E. Habib



Answer the following questions:

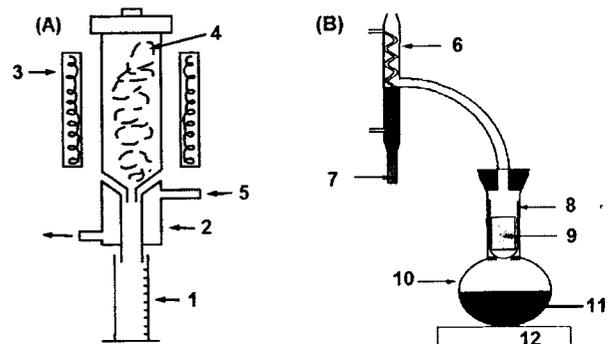
1. Define the following terms: (5 marks)
 - a) Whole Core, Core Slab, Core Plug.
 - b) Tortuosity factor.
 - c) Effective permeability.
 - d) Formation factor.
2. Explain shortly what you understand by THREE ONLY of the following: (9 marks)
 - a) Core alteration processes.
 - b) Applications of core-gamma surface logs.
 - c) Factors affecting permeability.
 - d) Dry and wet core preservation methods.
3. Write the relations used for estimating THREE ONLY of the following: (4 marks)
 - a) Permeability using Coates (1980) equation.
 - b) Pore compressibility.
 - c) Overburden pressure.
 - d) The fluid mobility in core sample.
4. What are the units of the following properties? (3 marks)
 - (a) Relative permeability.
 - (b) Compressibility.
 - (c) Resistivity.
 - (d) Hydrostatic pressure.
 - (e) Formation factor.
 - (f) Gamma radiation.
5. Write short notes *with the help of diagrams* on ONLY ONE subject: (10 marks)
 - a) Bottom-hole continuous coring systems.
 - b) Sidewall coring systems.
6. Complete the following sentences: (4 marks)
 - a) If water and oil exist, the oil wets strongly the formation when contact angle is
 - b) Capillary pressure is It depends on.....
 - c) If an oil and water are brought into contact in reservoir, the value of Interfacial tension will be in the range

7. Solve the following problem: (5 marks)

An irregular piece of sandstone is 35 grams in mass. When coated with varnish, its mass increased to 36.35 grams. If the coated sample displaces 15.79 ml of water when fully submerged. Given density of sandstone grains $\rho_g = 2.65 \text{ g/cm}^3$, density of water $\rho_w = 1.05 \text{ g/cm}^3$, density of varnish $\rho_v = 1.75 \text{ g/cm}^3$, compute the value and type of rock porosity (\emptyset)?

8. The given diagram show two laboratory devices A and B used for measuring a rock property: (10 marks)

- a- What are the name of these devices and which property they measure?
- b- Write the components of each device indicated by numbers from 1 to 12?
- c- What are the advantages and disadvantages of using each device in measuring such property?



<p>Geology Department Faculty of Science Assiut University</p>		<p>Time: 2 H January 2017 Sedimentation & Depositional Systems 325 GP</p>
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Answer the **FIRST QUESTION** and **ONLY ONE** of the others:

I- The First Question (إجباري): (10 Marks)

Indicate by the mark (X) or (√) and correct the incorrect sentences:

- 1) Massive Bedding has primary sedimentary structures ().
- 2) Polymictic conglomerates are composed of clasts include several different rock types ().
- 3) Glacial till that is transported within glacial ice is typically rounded in shape ().
- 4) High feldspar content in sandstone carries specific implications about source area, climate and topography ().
- 5) Heavy minerals typically have densities that exceed those of the common rock-forming minerals quartz and feldspar ().
- 6) Intraformational conglomerates are derived locally from outside the depositional basin ().
- 7) Debris-flow deposits are typically poorly sorted, matrix-supported sediments with random clast orientation and no sedimentary structures ().
- 8) Gypsum is the main mineral constituent of the carbonate minerals ().
- 9) Layers of Mg-O/OH in a clay mineral are referred to as gibbsite layers ().
- 10) Sphericity is a description of how angular the edges of a particle are ().

II- The Second Question (إختياري): (15 Marks)

- A) Compare between the following: (6 Marks)
 - i) Hummocky cross stratification and Heterolithic stratification
 - ii) Quartz arenite and quartz wacke
 - iii) kandite group and smectite group.
- B) Define the planar bedding and write on its types. (5 Marks)
- C) Write on the classification of conglomerates and Breccias (4 Marks)

III- The Third Question (إختياري): (15 Marks)

Write on of the following:

- A) Write on The evaporites and its economic importance (5 Marks)
- B) Dunham classification of limestones. (4 Marks)
- C) Define each of the following: (6 Marks)
 - i) Roundness
 - ii) Sphericity
 - iii) Form of the particles
 - iv) Texture of the sediments

Good luck

Dr. Mahmoud A. Essa



جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان التحريرى لطلاب المستوى الثالث بكلية العلوم شعبة "جيولوجيا البترول"
المقرر: حفريات دقيقة وبالينولوجى (٣١٣ ج ب)
دور يناير - العام الجامعى ٢٠١٦/٢٠١٧ م

الزمن: ساعتان

الدرجة الكلية للامتحان: ٥٠ درجة

ملحوظة الامتحان يتكون من ورقة واحدة على الوجهين

I- PART ONE "MICROPALAEONTOLOGY"

ANSWER THE FOLLOWING QUESTIONS:

Question No. 1: (10 marks)

- 1- Discuss zones of the ocean upper water column according to the penetration of light. (6 Marks)
- 2- Give reasons for **two only** of the following: (4 Marks)
 - i- The occurrence of agglutinated foraminiferal tests in anoxic marine environment.
 - ii- Foraminifera with hard tests that don't habitat the fresh water environments.
 - iii- The decline of alkalinity with increasing depth in marine environment.

Question No. 2: (10 marks)

- 1- Compare between the ostracoda and planktonic foraminifera in:
Systematic position - environmental habitat - shell walls – shell morphology -
mode of life (6 Marks)
- 2- Write an essay on **one only** of the following: (4 Marks)
 - i- Radiolarians
 - ii- Nannoplanktons

Question No. 3: (5 marks)

- 1- Describe the types of conodonts. (3 Marks)
- 2- Define **one only** of the following: (2 Marks)
 - i- Dimorphism
 - ii- Salinity

I- PART TWO "PALYNOLOGY"

ANSWER THE FOLLOWING QUESTIONS:

Question No. 4: Choose if the following are (right) or (wrong): (5 marks; 1 mark each)

- a- River plume hazards can be inferred by using distribution of modern dinoflagellates in bottom sediments of water bodies.
- b- The outlines of a longitudinal pollen grain can always be seen in both polar and equatorial views.



أنظر خلفه لباقي الأسئلة

4. Industrial materials were laid down in Egypt under environmental settings, *illustrate the environment of the following:* (5 Marks)
- a) Iron ore
 - b) Hammamat conglomerates
 - c) Coal
 - d) Evaporites
 - e) Glauconite
5. Sedimentary basins are economically important, *mention the sedimentary basins in Northwestern Desert in Egypt and their importance.* (5 Marks)
6. The sedimentary package of Egypt was accumulated under different environmental settings, *explain in brief this statement and mention three rock units corresponding to the main classification of sedimentary environments, illustrating your answer with drawings.* (8 Marks)

-
7. Answer only ONE of the following: (5 Marks)
- A. Vertical variation in the type of cross- bedding through sedimentary sequence is a reliable parameter in environmental interpretation, *explain this statement illustrating your answer with drawings.*
 - B. Modern Aeolian sediments are well represented in Egypt, *what are their textural characteristics and environmental hazards due to their movement.*

-
8. Mention FIVE sedimentary basins related to plate divergence.

(5 Marks)

**Geology Department
Faculty of Science
Assiut University**

**Time: 2 H
Juae: 2017**

**Structural geology (347GP)
Prof. Dr. Mohamed Abdel-Raouf Hassan**

- Answer the following questions: (50 marks)**
- 1-Types of folding (15 marks)**
 - 2-Type of faulting (15 marks)**
 - 3-Write brief on lineations (10 marks)**
 - 4- Types of classification of structures (10 marks)**

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

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-Tektites are naturally occurring silica glass can

- A. formed during the impact of a meteor.
- B. formed from volcanic eruptions
- C. Both

10- Increased Ti/Al ratio would reflect

- A. relative sea-level rise
- B. relative sea-level fall
- C. Both

11-Detrital components are

- A- those materials which remain in situ or transported to other sites without chemical changes
- B- transported as dissolved matters
- C- un-resistance to chemical weathering

12-Diamond was found at the K/T boundary as:

- A. nanometer-sized diamonds
- B. micrometer-sized diamonds
- C. millimeter-sized diamond

13-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

14- $\delta^{13}C =$ -----

15- During precipitation, $H_2^{18}O$ condensates more rapidly than $H_2^{16}O$

- A. True
- B. False

16-During usual diagenetic processes (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 stable

- d) The upward or downward polarity of the S-wave is the key in solving the focal mechanism analyses.
- e) In focal mechanism analyses, the upward and downward polarity indicate compressional and dilatation forces, respectively.
- f) The natural frequency is the reciprocal of the period.
- g) The Nyquist frequency equals half of the cut-off frequency.
- h) The predominant frequency corresponds to the wave of the lowest amplitude.
- i) The main factor controlling the acoustic impedance changes is the frequency of the incoming waves.
- j) Only SV- waves produce Love waves when they reach the surface.

3. Answer ONLY ONE from the following:

- a) Derive the equation of seismic impedance changes. (7 marks)
- b) Explain the principle of the Feedback circuit of a force-balance accelerometer (FBA). (7 marks)

End of questions

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

Final written exam on: Micropaleontology & Historical Geology (G315)

الزمن: ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2017م

ملحوظة: الامتحان يتكون من صفتين

Part I: Micropaleontology (30 Marks)

السؤال الأول: (5 درجات)

- 1- Discuss the habitats of benthonic foraminifera. (3 Marks)
- 2- Give reasons for ***two only*** of the following: (2 Marks)
 - i- The occurrence of diatomaceous ooze in abyssal marine environment.
 - ii- The thinning of foraminiferal tests in high latitude providences.
 - iii- The absence of foraminiferal faunal fossils in fresh water environments.

السؤال الثاني: (5 درجات)

- 1- Compare between the Radiolaria and benthonic foraminifera in: Systematic position - environmental habitat - shell walls - shell shape - mode of life (3 Marks)
- 2- Write an essay on ***one only*** of the following: (2 Marks)
 - i- The Conodonts
 - ii- The fresh water Ostracoda
 - iii- Mineralogy of coccoliths

السؤال الثالث: (5 درجات)

Answer the following questions:

- 1- Describe the effect of nutrient on the distribution of foraminifera. (2 Marks)
- 2- Define ***two only*** the following items: (3 Marks)
 - i- Megalospheric nad microspheric forms in foraminifera
 - ii- Calcium Carbonate Compensation Depth
 - iii- Tubidity

السؤال الرابع: (5 درجات)

Mark the correct and the wrong statements, and correct the wrong one: (5 marks; 1 mark each)

- A- Dinoflagellates with a nucleus are classified under Dinokaryota.
- B- Treatment of clay samples using sodium hexametaphosphate [(NaPO₃)₆] provides more palynologically-productive residue than the acid treatment.
- C- Proximal face is that part of a palynomorph, which faces towards the centre of the tetrad, between equator and proximal pole.
- D- Palynomorphs are useful in studying shallow marine sedimentary rocks that lack marine microfuna.
- E- Potonié's turmal classification of spores and pollen grains is regarded as an artificial (i.e. non-biological) classification.

السؤال الخامس: (5 درجات)

Define Five only of the following: (5 marks; 1 mark each)

- A- Cingulum, B- Aperture, C- Exine, D- Pollen, E- Archeopyle, F- Amb, G- Tabulation.

- A. The continental rise is the gently-sloping transition between the and (2 marks).
- B.are flat-topped seamounts whose tops have been eroded by wave action (1.5 marks).
- C. Sea floor spreadings are sites where new ocean lithosphere is created. They are the boundaries of plate tectonics (1.5 marks).
- D. Hydrogenous sediments on the sea floor are derived from.....(1.25 marks).
- E. Turbidites are thought to have been deposited bycarrying loads of neritic material that spreads out across the continental rise (2 marks).

Good Luck

Dr. Abdalla El Ayyat

12. Airy's model for isostasy is geologically preferred than Pratt's model
13. The problem of the second vertical derivative is that it enhances noise and thus must be done carefully
14. In magnetic method the magnitude varies by a factor of two from equator to pole
15. The direction of magnetic field is perpendicular to the surface of the earth whereas the gravity field direction varies.
16. Secular variations in magnetic field occurs overnight
17. Taking the 1st or 2nd derivative of gravity data can reveal the sense of contacts (Edges of anomalies)
18. Ore deposit such as galena and pyrite represent a good target for gravity survey
19. Rhyolitic rocks has greater gravity acceleration than basaltic rocks
20. In gravity and magnetic method the shallower the body the broader the anomaly

D) Write briefly on only ten of the followings: (two marks each)

1. Draw a schematic representation of the effect of density contrast, depth and radius on the shape of gravity anomaly profiles
2. The concept of ambiguity in gravity and magnetic interpretation
3. Three different applications for both gravity and magnetic method
4. The Griffin method of local-regional separation
5. The advantages and disadvantages of magnetic survey gradiometer
6. The procedure of airborne magnetic survey
7. Advantages and limitations of magnetic survey
8. Three general guidelines of magnetic data interpretation
9. The general approach of gravity interpretation
10. The steps for the gravity survey on Land
11. Pratt Model of Isostasy
12. List the seven different methods of density determination
13. List the different methods of local-regional separation
14. List five different types of remnant magnetization
15. The different causes of changes in earth's magnetic field

GOOD LUCK

Prof. Dr. Gamal Zidan

ANSWER ONLY TWO OF THE FOLLOWING QUESTIONS:

III. Write short notes on the following; illustrating your answer with suitable drawings: (12.5 marks)

- a) Thrust faults.
- b) Strike-slip fault with related flower structure.
- c) Types of joints.
- d) Brittle fault rocks .

IV. Write on each of following: (12.5 marks)

- a) The relation of faulting to stress.
- b) Mechanics of formation of salt domes.

V. Write on: (12.5 marks)

- A) Geometric classification of faults.
- B) Fold symmetry and fold vergence.

VI. Write short notes on the following: (12.5 marks)

- A- Classification of geologic structures
- B- Commercial importance of salt domes

GOOD LUCK!

Prof.Dr. Moustafa M. Youssef

Geology Department
Faculty of Science
Assiut University



Time: 2 hours
January 2017
First Semester Exam.

Subject: Sedimentary Environments and Sedimentary Basins (335 G)

Answer the following questions:

(50 Marks)

1. Define the following:

(10 Marks)

- a) Neritic sediments
- b) Distal alluvial fan sediments
- c) Pre-depositional sedimentary basins
- d) Prodelta sediments
- e) Active sedimentary basins

2. River Nile Delta represents a modern analogue of deltaic system, ***which type of delta it belongs to and what are the main processes influencing delta depositional system***

(7 Marks)

3. Answer only **ONE** of the following:

(5 Marks)

- A. Sedimentary environments are affected by many parameters, ***mention these.***
 - B. Write short account on the evolution of rifting ***illustrating your answer with drawings.***
-



Final Exam on Geophysical exploration for oil and gas (351 PG)

- i. Answer (**TOW ONLY**) of the following questions (with illustration as it is possible)
- 1- Estimate the Time –distance equation for reflected rays.
 - 2-
 - a). Explain how the seismic trace is formed using the seismic convolution model
 - b) Estimate the output response for convolution of the reflectivity sequence (1, 0, 1/2) with the source wavelet (1, -1/2).
 - 3- Measure the similarity or time alignment of the two traces wavelet 1: (2,1,-1,0,0) and wavelet 2: (0,0,2,1,-1) using cross correlation process and show how much the two time series resemble each other and determine the time lag at which they are mostly similar.
- ii. Answer (**FIVE ONLY**) of the following questions (with illustration as it is possible)
- 1) Write on the reservoir impedance contrast and direct hydrocarbon indicators.
 - 2) Explain the differences between homogeneity and isotropism
 - 3) In seismic data acquisition, identified the different types of gathers .
 - 4) Write about different types of seismic noise (Random and coherent)
 - 5) Write briefly about different steps of seismic data processing.
 - 6) Define Zero phase wavelet, 45° phase wavelet, 90° phase wavelet, and Minimum phase wavelet .
 - 7) 1)Write about Dynamic correction



1st Semester Final Written Exam, 2016-2017

Course: **Organic Geochemistry, PG332**

Time Allowed: **2 Hrs**

Answer the following questions

1- State whether the following statements are correct or wrong and correct the wrong one: (10 marks; 2 marks each)

- A- Pyrolysis is defined as heating of organic matter in presence of oxygen to yield organic compounds.
- B- Liptinitic organic matter is characterized by low Hydrogen index and is prone to produce gas if it undergoes thermal maturation.
- C- Photosynthesis is the most important source of primary production of organic matter.
- D- During catagenesis, methane is the only hydrocarbon released, and is often referred to as the Dry Gas Zone.
- E- Much of organic material produced by phytoplanktons is consumed within euphotic zone by herbivorous zooplankton.

2- Define Five Only of the following: (10 marks; 2 marks each)

- A- Oil window, B- Tmax, C- NSO compounds, D- Inertinite, E- Kerogen, F- Organic compounds, G- Source rock.

3- Choose the correct answer: (10 marks; 2 marks each)

- A- Which of the pyrolysis-estimated parameter stands for free hydrocarbon that can be volatilized out of rock without cracking?
1- S_1 2- S_2 3- S_3 4- T_{max} 5- PP 6- All of them
- B- Crude oils can be classified according to the relative amounts of acyclic alkanes, cycloalkanes, aromatic hydrocarbons, and NSO into:
1- Paraffinic-naphthenic oils 2- Paraffinic oils 3- Aromatic-intermediate oils 4- All of them
- C- Photosynthesis carried out by primary producers may be affected by:
1- Temperature 2- Water 3- Light 4- Salinity 5- All of them
- D- Type of organic matter can be determined by which of the following analysis?
1- Palynological 2- Elemental 3- Organic geochemical 4- All of them
- E- Preserved lipid components found within bitumen in coals as well as in kerogens are called:
1- Kerogen 2- biomarkers 3- Brown coal 4- All of them

4- Write briefly on TWO Only of the following: (20 marks; 10 marks each)

- A- Process of hydrocarbon generation.
- B- Unconventional Natural Gas.
- C- Different methods used in determining thermal maturation of organic matter.

Good luck

Examiner: Dr. Amr S. Deaf

السؤال الرابع: (10 درجات)

Choose the correct answer: (one Mark for each)

- 1- A break in the rock record is known as a(an)
a) unconformity b) superposition c) correlation d) inclusion
- 2- Plants first began to invade the land during the Period.
a) Cretaceous b) Silurian c) Carboniferous d) Cambrian
- 3- Geologists refer to a period of mountain-building as a (an):
a) drifting b) transgression c) regression d) orogeny
- 4- The largest of the early Paleozoic continents was....., which included all of the modern continents of the southern hemisphere.
a) Baltica b) Gondwanaland c) Laurentia d) Siberia
- 5- The collision of Gondwanaland with Laurasia caused the Orogeny during the Carboniferous Period.
a) Laramide b) Caledonian c) Nevadan d) Taconic
- 6- The extraterrestrial object responsible for the extinction of dinosaurs struck Earth in
a) Mexico b) Siberia c) South America d) north Africa
- 7- What is the name given to a widespread, but difficult to interpret, group of fossils in the late Proterozoic that consist of the impressions of soft-bodied animals in sediments?
a) The Protozoia b) The Ediacaran c) The Bryozoa d) The Burgess
- 8- The supercontinent of Rodinia is believed to have assembled from plate collisions during which time?
a) Late Archean b) Mesoproterozoic
c) Paleoproterozoic d) Neoproterozoic
- 9- The group of marine invertebrates that dominate the fossil record of the Mesozoic are the.....
a) rugose corals b) tabulate corals c) trilobites d) ammonites
- 10- The first vertebrates to invade the land were the.....
a) mammals b) reptiles c) insects d) amphibians

السؤال الخامس: (10 درجات)

- 1- Explain two only of the following events: (7 Marks)
a) Messinian Crisis b) History of Iapetus Ocean c) Diachronous events
- 2- Write the derivation of three only of the following: (3 Marks)
a) Carboniferous b) Archean c) Jurassic d) Paleogene

تمت الأسئلة مع أطيب الأمنيات بالتوفيق

د/نصر احمد عبدالمقصود

أ.د / ناجح عبد الرحمن عبيد الله

بسم الله الرحمن الرحيم

جامعة أسيوط

كلية العلوم - قسم الجيولوجيا

امتحان التحريري للمستوى الرابع بكلية العلوم شعبة جيولوجيا البترول

المادة: طباقية زمنية وحياتية (316 ج ب)
(Chrono- and Bio-stratigraphy, 316GP)

الزمن: ساعتان

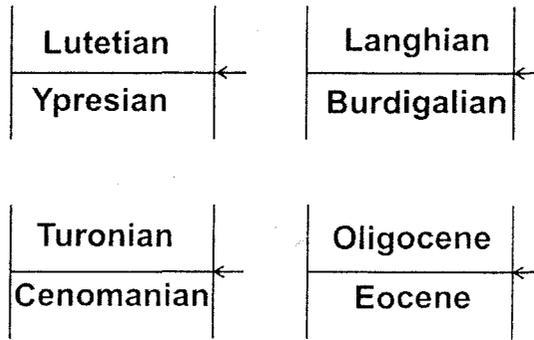
الدرجة: ٥٠ درجة دور يونيو ٢٠١٦/٢٠١٧ م

(الامتحان في صفتين)

Answer the following questions:

السؤال الأول: (10 درجات)

1- Redraw the blow figure and define the chronostratigraphic boundaries by using the important planktonic foraminiferal events. (6 Marks)



2- Write the geologic age of four only of the following planktonic foraminiferal zones: (4 Marks)

- a) *Globorotalia margaritae* b) *Globotruncanita calcarata*
c) *Acarinina sibaiyaensis* d) *Dicarinella asymetrica*
e) *Schakonia cabri*

السؤال الثاني: (10 درجات)

- In a geologic time table construct the chrostratigraphic units of the Paleozoic Erathem, and then write one example of the rock-forming index fossils of every unit.

السؤال الثالث: (10 درجات)

1- Compare between one only of the following terms: (5 Marks)

- a) Taxon and Concurrent-range zones.
b) Introduced and reworked fossils.

2- Explain two only of the following concepts: (5 Marks)

- a) extinction b) evolution c) ichnofacies

- c- Scolecodonts are unicellular aquatic organisms, motile and heterotrophic, generally with two flagella.
- d- Spores, pollen grains, bisaccate pollen and chitinous microforaminiferal linings are termed "palynodebris".
- e- Dinoflagellates can only be produced by vegetative reproduction.

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

- a- Write on palynofacies application for hydrocarbon source rock evaluation.
- b- Describe with drawings spore morphology.
- c- What is paratabulation formula in dinoflagellate cysts? with reference to Kofoidian system of paratabulation.

Question No. 6: Complete the missing word(s): (5 marks; 1 mark each)

- a- Small palynomorphs include wide range of organic-walled types up to μm in diameter.
- b- Spores have openings in the form ofbut pollen grains have and
- c- Van Krevelen diagram can be used to identify the
- d- Mesofossils and megafossils can often be isolated intact from their enclosing matrix using
- e- Transmitted light microscopy of fossil palynomorphs can be carried out using "Phase contrast" microscopes or "....." Microscopes.

Question No. 7: Write briefly on **two only** of the following: (5 marks; 2.5 marks each)

- a- Ornamentation of spore/pollen walls.
- b- Fossil record of dinoflagellate cysts.
- c- Peridinioid dinoflagellates.

تمت الأسئلة مع أطيب الأمنيات بالتوفيق

Examiners:

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

<p>Geology Department Faculty of Sciences Assiut University</p>		<p>First Term Examination Diagenesis and Marine Geology (323 G) January, 2017-Two Hours Students: 3rd level geology students</p>
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First Part: Diagenesis (25 marks)

Answer the following questions

- 1- A marked variation of diagenetic processes between sandstones and carbonates exists; *illustrate in brief the difference between the above mentioned types* (8 Marks)
- 2- Each zone and/or diagenetic regime is characterized by a specific reaction, *explain what are the most prominent features of Eogenesis, Mesogenesis and Telogenesis regimes* (6 Marks)

Answer only ONE of the following:

- 3- Overgrowth is one of the most diagenetic features characterizing sandstone, *what are the sources of silica required for this phenomenon.* (5 Marks)
 - 4- The sedimentary package of Egypt illustrates diagenetic structures, *mention these and which stratigraphic units revealed such structures.* (5 Marks)
-
- 5- Write short notes on the organic matter diagenesis, *illustrating your answer with drawings.* (6 Marks)

Prof. Dr. Ezzat Abdallah Ahmed

GOOD LUCK

باقى الاسئلة فى الصفحات التالية
انظر خلفه



First Semester Examination
Historical Geology and Origin of Species (313G)
3rd Level students

PART ONE: HISTORICAL GEOLOGY

Answer the following questions.

First Question (10 marks).

- 1- The Paleogeographic history of the Paleozoic Era is not precisely known as for the Mesozoic and Cenozoic Eras, explain **(3 marks)**.
- 2- Closes of the Tethys Sea during the Cenozoic caused an important geologic event, explain **(4 marks)**.
- 3- Discuss the evolution of Earth's atmosphere **(3 marks)**.

Second Question (5 marks).

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

- 1- Low of inclusions is a method to determine the rock age in a precise way..... ()
- 2- The Cascade Mountain range is the result of the Alpine–Himalayan Orogeny at the end of the Eocene..... ()
- 3- Fragmentation of Rodinia during Proterozoic giving rise the continents that existed at the onset of the Phanerozoic Eon..... ()
- 4- The northern part of Iapetus Ocean was closed as the result of Caledonian Orogeny..... ()
- 5- The Cordilleran Orogenic activity is related to the movement of the North American plate as it overrode the Farallon plate..... ()

Third Question (10 marks).

A. Define and give reasons for TOW only of the following (4 marks).

- 1- Laramide Orogeny.
- 2- Devonian Mass Extinction.
- 3- Ice ages during Cenozoic.
- 4- Sonoma Orogeny.

B. Give the exact ages for THREE only of following (3 marks)

- 1- *Basilasaurus*
- 2- *Archaeopteryx*
- 3- *Lepidodendron*
- 4- Stromatolites
- 5- *Hipparion*
- 6- *Morozovella velascoensis*

C. Compare between TWO only of the following (3 marks)

- 1- The Ediacaran and Burgess Shale fauna.
- 2- Acadian and Ural Orogenies.
- 3- Prokaryotes and Eukaryotes.

G 327: Sedimentology & Depositional Systems

Part 1: Sedimentology (25 Marks)

Answer five questions only:

1. a. What is a conglomerate? What is a polymictic conglomerates?
b. What is a breccia?
(5 Marks)
2. What is a quartz arenite and greyackes?
(5 Marks)
3. a- What is a mud rocks? Mention **briefly** the composition of the mudstones
(5 Marks)
4. a- What is the difference between the allochemical and orthochemical components of the limestones?
b. What is the the composition of the oosparite?
(5 Marks)
5. Mention the main types of the evaporite rocks and their mineralogical composition.
(5 Marks)
6. What is the term diagenesis mean? What are the principal processes of diagenesis?
(5 Marks)

<p>Geology Department Faculty of Science Assiut University</p>		<p>Time: 2 H January 2017 Sedimentation & Depositional Systems 325 GP</p>
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Answer the **FIRST QUESTION** and **ONLY ONE** of the others:

I- The First Question (إجباري): (10 Marks)

Indicate by the mark (X) or (√) and correct the incorrect sentences:

- 1) Massive Bedding has primary sedimentary structures ().
- 2) Polymictic conglomerates are composed of clasts include several different rock types ().
- 3) Glacial till that is transported within glacial ice is typically rounded in shape ().
- 4) High feldspar content in sandstone carries specific implications about source area, climate and topography ().
- 5) Heavy minerals typically have densities that exceed those of the common rock-forming minerals quartz and feldspar ().
- 6) Intraformational conglomerates are derived locally from outside the depositional basin ().
- 7) Debris-flow deposits are typically poorly sorted, matrix-supported sediments with random clast orientation and no sedimentary structures ().
- 8) Gypsum is the main mineral constituent of the carbonate minerals ().
- 9) Layers of Mg-O/OH in a clay mineral are referred to as gibbsite layers ().
- 10) Sphericity is a description of how angular the edges of a particle are ().

II- The Second Question (إختياري): (15 Marks)

- A) Compare between the following: (6 Marks)
 - i) Hummocky cross stratification and Heterolithic stratification
 - ii) Quartz arenite and quartz wacke
 - iii) kandite group and smectite group.
- B) Define the planar bedding and write on its types. (5 Marks)
- C) Write on the classification of conglomerates and Breccias (4 Marks)

III- The Third Question (إختياري): (15 Marks)

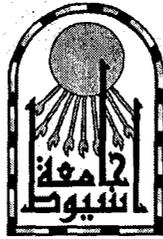
Write on of the following:

- A) Write on The evaporites and its economic importance (5 Marks)
- B) Dunham classification of limestones. (4 Marks)
- C) Define each of the following: (6 Marks)
 - i) Roundness
 - ii) Sphericity
 - iii) Form of the particles
 - iv) Texture of the sediments

Good luck

Dr. Mahmoud A. Essa

Geology Department
Faculty of Science
Assiut University



Time: 2 hours
January 2017
First Semester Exam.

Subject: Sedimentary Environments and Sedimentary Basins (335 G)

Answer the following questions:

(50 Marks)

1. Define the following:

(10 Marks)

- a) Neritic sediments
- b) Distal alluvial fan sediments
- c) Pre-depositional sedimentary basins
- d) Prodelta sediments
- e) Active sedimentary basins

2. River Nile Delta represents a modern analogue of deltaic system, ***which type of delta it belongs to and what are the main processes influencing delta depositional system***

(7 Marks)

3. ***Answer only ONE of the following:***

(5 Marks)

A. Sedimentary environments are affected by many parameters, ***mention these.***

B. Write short account on the evolution of rifting ***illustrating your answer with drawings.***



كلية العلوم - قسم الجيولوجيا



جامعة أسيوط

FINAL EXAM "G 345"

PRINCIPLES OF STRUCTURAL GEOLOGY

Time allowed: Two hours (50 marks) January 2017

Answer the following Two Questions

I- Complete the following and write in your answer paper (9 marks)

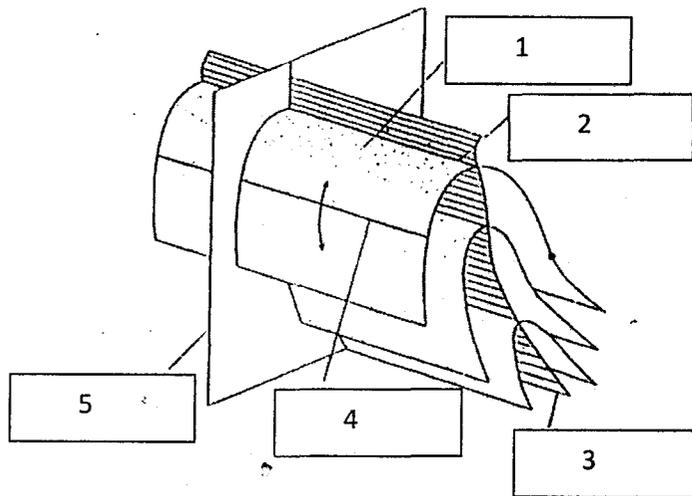
1. Strain is the deformation caused by stress; strain may be, which is a change in volume, or which is a change in form, or both.

2. The following are four factors controlling the behavior of rocks during deformation:

- a)
- b).....
- c) and
- d).....

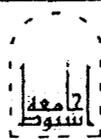
3. Write the correct word of the fold element:

- 1 :.....
- 2:
- 3:.....
- 4:
- 5:.....



II. Compare between the following: (16 marks)

- a) Harmonic and disharmonic folds.
- b) Simple shear and pure shear.
- c) Parallel and similar folds.
- d) Listric normal fault and right lateral strike-slip fault.



SECTION ONE: IGNEOUS AND METAMORPHIC ROCKS

Answer the following questions using drawing if possible: (32 Marks)

- 1- Briefly outline the main basis used for classification of the whole range of igneous rocks. (12 Marks)
- 2- Compare between TWO of the following pairs: (8 Marks)
 - a- Intergranular texture – Intersertal texture
 - b- Porphyritic texture – Glomeroporphyritic texture
 - c- Spherulitic texture – Myrmekitic texture
- 3- Write short notes on the main facies pertaining to the regional metamorphism. (12 Marks)

SECTION TWO: SEDIMENTARY ROCKS

Answer ONLY TWO questions from the following: (18 Marks)

- 1- Write on the following (9 Marks)
 - a- Silica cementation in sandstones. (3 Marks)
 - b- Dunham classification of limestones. (3 Marks)
 - c- The form of the particles and the factors controlling the particle shape. (3 Marks)
- 2- Discuss the following: (9 Marks)
 - a- Definition of the porosity and permeability in sedimentary rocks discussing the factors controlling them and their importance. (5 Marks)
 - b- Define each of the following: (4 Marks)
 - i) Texture of the sediments
 - ii) Roundness
 - iii) Sphericity
 - iv) Fabric
- 3- Write on the following: (9 Marks)
 - a- Classification of epiclastic conglomerates and Breccias (3 Marks)
 - b- Planar bedding and its types. (3 Marks)
 - c- The gravity flow deposits. (3 Marks)

With my Best wishes

Geology Department Faculty of Science Assiut University	Final Exam Course title: Environmental Geophysics Course code: G 353	January, 2017 Total marks: 50 Time: 2 hours
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Answer the following questions:

First question: **(15 Marks)**

- a) Blind-zone problem affect the success of using seismic-refraction techniques in hydrologic studies. **How is that?**
- b) Several common geologic situations which can produce confusing travel-time curves! **Interpret that by drawing.**
- c) **Write on** applications of GPR in characterizing hydrogeologic conditions.

Second question: **(10 Marks)**

1- Put mark (✓) or (X) with Error Correction

- a) The electromagnetic energy is reflected back to the surface receiving antenna and is recorded as function of horizontal distance versus depth. ()
- b) Reflection of energy from a small sphere produces diffracted waves. ()
- c) Penetration of radar waves is reduced by a shallow water table, low clay content of the subsurface, and in areas where the electrical resistivity of the subsurface is more than 30 ohmmeters. ()
- d) The speed of radio wave (V_m) in any medium dependent only up on the speed of light and relative dielectric constant (ϵ_r). ()
- e) Folded subsurface layers produce diffraction waves in seismic survey. ()

2- Complete the missing answer

- a) Under optimal conditions, GPR data can resolve changes 1).....,2).....,3)....., 4)..... and hydrologic features such as
- b) If a layer has a lower velocity than the one above. There can be no 1)....., 2).....,3).....,4).....

Third question: **(9 Marks)**

- 1-** The limestone rocks in an area contain subsurface voids. The area is planned to be used for engineering purposes. Show how can use the gravity method to evaluate it explaining:
- a) Gravity measurements.
 - b) Data processing and interpretation.
 - c) 2D profiles showing the voids.

Fourth question: **(8 Marks)**

- 2-** An aquifer is bounded to the north by saline fresh water interface of less than 5 wide, this interface is probably caused by natural and anthropogenic activities. Which one of the following could be useful in delineating the problem caused by the saline intrusion from the north:
- a) Gravity and magnetic methods.
 - b) Electromagnetic and 2D-resistivity imaging techniques.

Comment on your answer and mention:

- a) Measurement technique.
- b) Your expectation in the measurement and analysis after remeasuring along the same profiles assuming high extraction rates to the south and no compensation.

Fifth question: **(8 Marks)**

- 3-** Write briefly about the self potential method in detection of the polluted groundwater explaining:
- a) Causes of the self potential signal in the sub-surface measurements.
 - b) Quantifying the self potential field curve.

Write briefly on **Two only** of the following: (10 marks; 5 marks each)

- A- Life cycle of spore-producing plants (with drawings).
- B- Standard palynological extraction technique of organic matter from sedimentary rocks.
- C- Cavation in wall of the dinoflagellate cysts (with drawings).

Part II: Historical Geology (20 Marks)

Answer the following questions:

- 1- In a geologic time table write and give reasons for the important orogenies, which took place during the Paleozoic Era. (5 Marks)
- 2- Compare between: (5 Marks)
 - a) Devonian and Carboniferous periods in: facies and important life forms. (2.5 marks).
 - b) Triassic and Cretaceous periods in: Derivation of name and important orogenies. (2.5 marks)
- 3- (I): Complete the following questions: (2.5 Marks)
 - A- The geologic time scale is structured by major changes in
 - B- A large meteor impact that could cause a mass extinction is a
 - C- When a majority of life forms die out due to an event in Earth's history this is called a.....
 - E- If the climate on earth changed suddenly it could cause many species to become extinct. This would be called aevent.
 - F- The first organisms to appear on Earth were
- 4- (II): Choose the correct answer: (2.5 Marks)
 - A- Precambrian time consists of
 - i- the first eon of Earth's history. ii- the last eon of Earth's history.
 - iii- the first period of Earth's history. iv- the middle eon of Earth's history.
 - B- The gradual development of new organisms from preexisting organisms is called
 - i- natural selection. ii- mass extinction. iii- evolution. iv- environmental change.
 - C- According to the *impact hypothesis*, dinosaurs became extinct when
 - i- the continents underwent great movement. ii- a giant meteorite crashed into Earth.
 - iii- volcanic activity increased. iv- Earth's climate became much warmer.
 - D- The Cenozoic Era is known as the
 - i- Age of Reptiles. ii- Age of Evolution. iii- Age of Fishes. iv- Age of Mammals.
 - E- Rodina supercontinent formed during
 - i- the Proterozoic time. ii- the Cambrian Period.
 - iii- the Permian Period. iv- the Carboniferous Period
- 5- (I): Discuss **two only** of the following: (2 Marks)
 - A- The formation of Nevadan Mountains. B- The Mediterranean salinity crisis.
 - C- The formation of Atlantic Ocean.
- 6- (II): Write the age of **six only** the following biota: (3 Marks)
Placoderms – Angiosperms – Basilasaurus – Globigerinoides – Equus – Archaeopteryx - Mesohippus

Part II: Origin of Species (25 degrees)

Answer the following questions

1- Write briefly on One only of the following: (10 marks)

- A- Prezygotic reproductive isolation.
- B- Evidence of evolution.

2- Define Five Only of the following: (10 marks; 2 marks each)

- A- Microevolution, B- Genetic drift, C- Prokaryotes, D- Allopatric speciation,
- E- Microevolution, F- Ecological species concept, G- Species.

3- State whether the following statements are correct or wrong and correct the wrong one: (5 marks; 1 mark each)

- A- Biological species concept defines a species as a set of organisms with a unique genetic history
- B- The Shannon index is highly affected by the sample size.
- C- Similarities among embryos of different vertebrates point to a common ancestor.
- D- Hybrid sterility means that two species can mate but produce a sterile healthy offspring.
- E- Homologous structures are organs differ in structure but often similar in function.

----- *End of Exam* -----

Good Luck

Dr. Amr S. Deaf

Dr. Amr A. Abdelhamid



First Semester, Third Level Final Examination

Time: 2 hours	Total marks: 50	Earthquake Seismology and Seismic Exploration (G350)	January, 2017
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PART ONE: Seismic Exploration (25 marks)

Answer the following questions:

- 1) Write short notes on (with illustrations)
 - a) Well velocity survey. (7 marks)
 - b) Relation between seismic velocity and both grain size and porosity. (6 marks)

- 2) Write briefly on **ONLY TWO** of the following (with illustrations)
 - a) Variation between geological and geophysical control for delineating faults. (6 marks)
 - b) Equations of material and concentration indices (M_i and C_i) and their relations with the degree of competency. (6 marks)
 - c) Elevation correction for seismic reflection data. (6 marks)

PART TWO: Earthquake Seismology (25 marks)

Answer the following questions:

1. Filling in the blank. (8 marks)
 - a) Seismic transparency of seismic station base must have
 - b) Fast Fourier Transform is.....
 - c) In focal mechanisms, one of the two nodal planes represents....., and the other nodal plane is the.....
 - d) Dynamic range is and its unit is
 - e) The most important factor that is caused liquefaction mechanism is the
 - f) Notch filter is, whereas Low pass filter is
 - g) Dynamic compaction is used to
 - h),, and are engineering solutions to prevent liquefaction occurrences.

2. All the following points are False, correct these false points. (10 marks)
 - a) Body waves (*i.e.* P-waves and S-waves) produce Love waves when they reach the surface.
 - b) A P-wave reflected at the outer surface (*i.e.* Crust) as P-wave is denoted by PP.
 - c) SKiKP is a wave starting as S, transmitted into the outer core, once reflected inside the outer core boundary, and emerging as S.

Part Two: Depositional systems (25 marks)
Answer only 3 questions out of the following

Question One: True or false (8.25 marks):

- A. Fine silts and clays tend to show a high energy environment (1.25 marks).
- B. The term "pelagic" is applied to those sediments that were deposited on the continent away from marine influence (2 marks).
- C. Oozes are defined as pelagic sediments with over 70% organic skeletal detritus (1.5 marks).
- D. Deltas form where a river does not bring sediment into the sea that can be re-deployed by marine currents (1.5 marks).
- E. Four major types of delta may be differentiated: fluviially dominated deltas, marine dominated deltas, glacially dominated deltas and wind dominated deltas (2 marks).

Question Two: Choose the correct answer (8.25 marks):

- A. A sedimentary facies is defined as... (a mass of sedimentary rock which can be defined by its geometry, lithology, sedimentary structures, paleocurrents, and fossils - a sedimentary facies is the product of a depositional environment - a sedimentary facies is defined as any aerially restricted part of a stratigraphic unit which exhibits characters significantly different from those of other parts of the unit - all of that - none of that) (1.5 marks).
- B. Trace fossils are used as facies diagnosis because.....(they occur in situ - recent and ancient sediments show that various assemblages of trace fossils are specific to environments and have changed little through geological time - it is not always easy to be sure that a fossil lived in or on the sediment in which it was buried - none of that) (2 marks).
- C. Which of the following features can be used to interpret the depositional environment.....(sedimentary structures - types of fossils - the types of minerals - the size, shape and surface texture of the sedimentary grains - all of that - none of that) (1.25 marks).
- D. Continental environments include all of the following except...(lake beds - river beds - glacial deposits - foraminiferal ooze - alluvial fans) (1.5 marks).
- E. Which one of the following can not be determined from an understanding of the conditions under which sedimentary rocks form.....(age of the rock - method of sediment transport - origin of the rock's component particles - environment of deposition) (2 marks).

Question Three: Discuss in detail the following items (8.25 marks):

- A. Paleocurrent patterns as a diagnostic parameter of a sedimentary facies (4.5 marks).
- B. The three defining parameters of a sedimentary environment (4 marks).
- C. Environments of deposition, erosion and equilibrium (4 marks).

Question Four: Discuss in detail the following items (8.25 marks):

- A. The basic types of deltas (4 marks).
- B. Alluvium of meandering river (4.5 marks).
- C. Carbonate compensation depth (CCD) (4 marks).

Good luck

Dr. Abdalla El Ayyat

Part Two: Sedimentary Environments (25 marks)

Answer only 3 questions out of the following:

Question One: Choose the correct answer (8.25 marks)

- A. Which of the following sedimentary environments is characterized by sand, gravel and mud (active margin beach - alluvial fans - glacial - deep marine - none of them) (2 marks).**
- B. Which of the following features in a sedimentary rock can be used to interpret its depositional environment (sedimentary structures - types of fossils - the types of minerals - the size, shape and surface texture of the sedimentary grains - all of them) (1.5 marks).**
- C. Continental environments include all of the following except (lake beds - river beds - glacial deposits - coral reefs - alluvial fans - point bar deposits) (1.5 marks).**
- D. Which one of the following can NOT be determined from an understanding of the conditions under which sedimentary rocks form (age of the rock - method and length of sediment transport - origin of the rock's component particles - environment of deposition) (2 marks).**
- E. Fluvial sedimentary environments are characterized by the action of (fire - ice - wind - flowing water - gravity) (1.25 marks). --**

Question Two: Write the scientific term describing the following items (8.25 marks):

- A. is a geographic location under which sediment can accumulate and characterized by a particular combination of geological processes and environmental conditions (2 marks).**
- B. Unlike lithology and fossils, are undoubtedly generated in place and can never have been brought in from outside (1.25 marks).**
- C. is the sediment disturbances caused by living organisms (2 marks).**
- D. marked by the interaction of fluvial and near-shore marine processes. Deltas, beaches, tidal flats, bars and lagoons (1.5 marks).**
- E. are accumulations of sediment formed by the reduction in velocity of stream upon reaching the ocean. Sometimes, crossbedded sandstones, sometimes plane-bedded sandstones (1.5 marks).**

Question Three: True or false (8.25 marks):

- A. Sedimentary environments of net erosion are typically subaqueous and consist largely of the mountainous areas of the world (1.5 marks).**
- B. Pelagic environment is an example of a shoreline/transitional environment (1.25 marks).**
- C. Ripple marks are strictly marine sedimentary structures (1.5 marks).**
- D. The lateral migration of a meandering channel erodes the inner concave bank, scours the river bed, and deposits sediment on the outer bank (point bar) (2 marks).**
- E. In searching for ancient deltas, we must look for thick clastic sequences showing repeated cycles of upward-fining grain size (2 marks).**

Question Four: Explain briefly the following topics with drawing (8.25 marks)

A. The alluvium of braided rivers (4 marks).

B. The basic types of delta (4.25 marks).

Best wishes

Dr. Abdalla El Ayyat

Assiut University
Faculty of Science
Geology Department



جامعة أسيوط
كلية العلوم
قسم الجيولوجيا

First Semester Final Examination 2016/2017

Subject: Course No. 319G (Chemostratigraphy)

Time allowed: one hour

Students: Third Year Students

Date: Jan.,15 , 2017

Examiner: Dr. Mamdouh F. Soliman
=====

Write your answers in the same sheets

اكتب أجابتك في نفس ورق الأسئلة

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

1-Asteroid are composed of:

- A. Calcareous bodies
- B. Silicate bodies
- C. Gas and ice
- D. B above
- E. A and B above

2- Achondrites are a type of:

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

3-Which one of the following is NOT typical of "Meteorites"

- A. Most stony meteorites are made up, in part, of small glassy spheres 1-2 mm in diameter
- B. They are composed of dark Mg and Fe- rich silicate minerals
- C. They contain some of the more volatile solar elements, such as C, H, and O, chemically combined into silicates
- D. They are composed of metallic iron and Nickel
- E. None of the above

4-Classify these elements into chalcophiles, lithophiles and siderophiles:

Al, Zn, Pd, Si, Pd, Sc, Sb, Ti, Cu, Ir, pb, Mo, Os, Co, Au, Mg, P, K

Chalcophiles:

Lithophiles:

Siderophiles:

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

.....

6-The Distal ejecta

- A. are often not immediately possible to recognize
- B. are often immediately possible to recognize
- C. cannot act as guide to major impact events

Second Part: Marine Geology (25 marks)

Answer only three questions out of the following

Question One: True or False (8.25 marks):

- A. The shelf break is the edge of the continental rise. It marks an abrupt change in slope of the sea floor (1.25 marks).
- B. The plate boundaries where new lithosphere is being added along oceanic ridges are destructive or convergent boundaries (2 marks).
- C. Shallow water waves travel across the ocean where the water depth (*d*) is greater than one-half the wavelength (1.5 marks).
- D. Turbidity deposits are accumulated on the continental shelf by long-shore currents (1.5 marks).
- E. The depth at which calcium carbonate is formed as fast as it dissolved is the carbonate compensation depth CCD (2 marks).

Question Two: Choose the correct answer out of the following (8.25 Marks)

- A- Pelagic sediments consist of(reddish brown clays derived from the continents - foraminiferal oozes - silica oozes - all that types of sediments) (1.5 marks).
- B- Turbidity current is a type of.....(deep current - steep current -long current - short current - slow currents - oblique currents) (2 marks).
- C- Large fan-shaped deposits of fine-grained sediments that accumulate on the continental rise are called.....(submarine fans - atolls -alluvial fans - spits - trenches- under water hills) (1.5 marks).
- D- Divergent plate boundaries are defined as.....(the plates are being continuously pulled apart rather than being pushed apart by upwelling of material beneath the ridges - the lithosphere is carried into the asthenosphere and it is heated by being subducted to greater depths - the plate boundaries where new lithosphere is being added along oceanic ridges) (2 marks).
- E- Most of the rock mass that supplies lithogenous sediment is.....(that which comes from space - that derived from continents - the insoluble remains of organisms - that derived from the mantle) (1.25 marks).

Question Three: Write short notes on the following items (8.25 marks):

- A. Carbonate compensation depth CCD (4 marks).
- B. Coral reef development (4.25 marks).

Question Four: Put the appropriate scientific term in the following spaces (8.25 marks):

4. Industrial materials were laid down in Egypt under environmental settings, *illustrate the environment of the following*: (5 Marks)
- a) Iron ore
 - b) Hammamat conglomerates
 - c) Coal
 - d) Evaporites
 - e) Glauconite
5. Sedimentary basins are economically important, *mention the sedimentary basins in Northwestern Desert in Egypt and their importance*. (5 Marks)
6. The sedimentary package of Egypt was accumulated under different environmental settings, *explain in brief this statement and mention three rock units corresponding to the main classification of sedimentary environments, illustrating your answer with drawings*. (8 Marks)

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7. Answer only ONE of the following: (5 Marks)
- A. Vertical variation in the type of cross-bedding through sedimentary sequence is a reliable parameter in environmental interpretation, *explain this statement illustrating your answer with drawings*.
 - B. Modern Aeolian sediments are well represented in Egypt, *what are their textural characteristics and environmental hazards due to their movement*.

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8. Mention FIVE sedimentary basins related to plate divergence. (5 Marks)