

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- Grey wacke
b- Oligomict conglomerate
(5 Marks)
2. a- What is the difference between the conglomerate and breccia?
c- Define the term mudrocks. What is the difference between siltstone and claystone?
(5 Marks)
3. a- What is the difference between mudstone and shale?
d- Mention the main three mineralogical composition of mudrocks
(5 Marks)
4. a. What is the difference between the limestone and dolomite?
B. What is the the four major types of allochems in limestones?
(5 Marks)
5. What are the evaporite rocks? Mention their mineralogical composition.
(5 Marks)
6. Write a brief account on the limestone diagenesis.
(5 Marks)

أ.د. محمد احمد سليمان

3. In searching for ancient deltas, we must look for thick clastic sequences showing repeated cycles of upward-fining grain size (one mark).
4. Oozes are defined as pelagic sediments with over 70% organic skeletal detritus (one mark).
5. The over-all shape of a sedimentary facies is a function of pre-depositional topography, the geomorphology of the depositional environment and its post-depositional history (one mark).

Question No. (3): Fill in the given spaces with appropriate words (5 marks):

1. marked by the interaction of fluvial and near-shore marine processes. Deltas, beaches, tidal flats, bars and lagoons are examples (one mark).
2. Two major types of delta may be differentiated, dominated deltas, and those dominated by process. Most deltas are subjected to extensive marine reworking. An important distinction must be made between deltas dominated by wave or tidal action (one mark).
3. is a mass of sedimentary rock which can be defined and distinguished from others by its geometry, lithology, sedimentary structures, paleocurrent pattern, and fossils (one mark).
4. Placers of alluvial deposits are variously termed occur in place above the parent ore, placers are those transported a short distance downslope and alluvial placers have undergone fluvial transportation (one mark).
5. is a geographic location under which sediment can accumulate and characterized by a particular combination of geological processes and environmental conditions (one mark).

Question No. (4): Explain briefly the following topics with drawing (5 marks)

- A. The vertical gradation of the grain size in alluvium of meandering rivers (2 marks).
- B. Carbonate compensation depth (CCD) (1.5 marks).
- C. The relationships between sedimentary environment and sedimentary facies (1.5 marks).

Question No. (5): Explain briefly the following topics with drawing (5 marks)

- A. Paleocurrent patterns of a sedimentary facies ((1.5 marks):
- B. Economic aspects of alluvial deposits ((1.5 marks).
- C. The basic types of deltas (2 marks).

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Good luck

Abdalla El Ayyat

Part Two: Sedimentary environments (25 marks)

Answer the following questions

Question No. (1): Choose the correct answer (5 marks)

1. If you were to walk from a beach out into the open water, what would happen to the size of grains you walk over (one mark)?

- A. the grains would get progressively finer as you walk out into the open water
- B. the grains size would increase as you move further away from land
- C. the grain size would decrease as you move out, and then increase as you get closer towards the deepest parts of the ocean
- D. there would be no change in the grain size of the particles as you walk out to sea.

2. Four sedimentary structures are formed during or after deposition, but before lithification. Which one of the following would *not* be included (one mark)?

- | | |
|------------------|--------------------|
| A. mud cracks | B. graded-bedding |
| C. cross-bedding | D. scour marks |
| E. ripple marks | F. slump and slide |

3. Which type of sedimentary structure can be used to determine current direction (one mark)?

- | | |
|--------------------------------|--|
| A. mud cracks and ripple marks | B. grain size sorting and ripple marks |
| C. fossils and mud cracks | D. ripple marks and cross-bedding |

4. The CCD is(one mark)

- | | |
|---|------------------|
| A. the zone in the oceans where organisms with calcite skeletons live | |
| B. the depth in the ocean where calcium carbonate is supersaturated | |
| C. the depth in the ocean where oxygen is at a minimum | |
| D. the depth in the ocean where calcium carbonate is understaturated | |
| E. none of the above | F. all the above |

5. Which of the following may be indicative of sediment deposition in a non-marine terrestrial environment (one mark)?

- | | | |
|--------------------------|------------------|----------------------|
| A. red colored sediments | B. mud cracks | C. plant fossils |
| D. turbidities | E. biogenic ooze | F. none of the above |

Question No. (2): True or False (5 marks)

1. Alluvial fans occur when streams enter bodies of standing water, undergo an abrupt loss of velocity, and drop their load of sediment (one mark).

2. A meandering river system has a unidirectional current flow; marine tidal channels have bidirectional but aeolian environment has polydirectional current flow (one mark).

انظر خلفه - باقى الاسئلة فى الصفحة التالية



First Semester, Third Level Final Examination

Time: 2 hours	Total marks: 50	Earthquake Seismology and Seismic Exploration (G350)	January, 2019
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PART ONE: Seismic Exploration (25 marks)

Answer the following questions:

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

- () Seismic prospecting depends mainly on the change of elastic properties of the medium.
- () Shear wave is the fastest kind of the seismic waves.
- () Curvature of the ray path is directly proportional to the velocity gradient
- () In anisotropic medium, the raypaths are smooth curved lines.
- () Head waves can be generated and recorded near the shot point.
- () In refraction method, the detected depth is directly related to the length of the measured profile.
- () Reflection is taking place when the acoustic impedance is varied at both sides of the interface.
- () Multiple reflection decreases of the recorded reflection time.
- () Intercept time is the actual time for refracted waves recorded near the shot point.
- () Reflected waves are usually recorded as first break in the seismograms.

II-Answer ONLY ONE of the following questions:

1- Answer the following questions:

- Derive equation for the time distance curve of the single horizontal reflecting interface.
- Write about the generated secondary waves at interface between two layers in all cases of mediums.

2- Answer the following questions:

- Estimate the relation between the vertical velocity gradient and the ray path curvature.
- Prove that the refraction time distance curve is tangent to the reflection time distance curve at the critical distance.

PART TWO: Earthquake Seismology (25 marks)

Answer the following questions:

(15 marks)

A) Put ONLY True or False.

- Fault asperities are roughness on the fault surface subject to slip.
- The origins of Love wave is Rayleigh wave and S-wave.
- Presence of total internal reflection caused by incidence with smallest angle or critical angle.
- A P-wave reflected at the outer surface of the crust as P-wave is denoted by PPP
- Ambient noise is also referred to as microtremor or seismic noise.
- The core shadow zone is caused by a dramatic drop in seismic velocities that occurs going from the base of the mantle into the core. This causes refraction upwards on entering the Earth's core.
- S-wave shadow zone occurs between 105 degrees and 180 degrees latitude, whereas P-waves also shadow zone occurs between 104 and 140 degrees
- Wave frequency is the product of shear wave velocity of a layer divided by four times the thickness of this layer.

9. Sampling frequency is the reciprocal of the sampling time interval
10. The damage occurs when the natural frequency of the layer match the natural frequency of any engineering structure embedded on it.
11. Fourier analyses consist of real part and image part that are divided by the Nyquist frequency.
12. Cut-off frequency is the frequency that corresponds to the lowest Fourier amplitude.
13. HVSR is capable of determining accurate estimates of predominant fundamental frequency
14. Ray tracing theory depends basically on Snell's law for flat layers.
15. Focal mechanism is the creation of a model of the initial rupture motion to determine the sense of slip of that earthquake or is a graphical summary of the strike, dip, and slip directions.
16. First S-wave motions are either upward or away from the source, or arrive downward or toward the source.
17. Upward polarity of P-waves ground motion indicates an expansion in the source region, whereas downward polarity of P-waves motion indicates a contraction in the source region.
18. Focal mechanisms are constructed using P-wave first motions frequencies.
19. Aftershocks sequences can provide valuable hints about fault plane orientation at depth.
20. Resonance effects are caused by a continuity in the medium properties, which leads to trapped waves with multiple reflections within the layer.
21. The auxiliary plane in focal mechanism is used to describe the direction of slip in the earthquake (this line must lay on the fault plane).
22. The edges of basins can effectively trap incoming seismic waves, thereby decreasing the duration of shaking in the basin.
23. Upward P-wave polarities at stations are experiencing pushing you away from the source of the earthquake, whereas downward P-wave polarities at stations are experiencing pulling toward the source of the earthquake.
24. Seismic transparency of seismic station base means that solid cemented base of the seismic station have significant impedance change with the underlying soil or hard bedrock
25. Dynamic range is the ratio between largest to the smallest measurable amplitude in Decibel (dB).
26. The orthogonal motion components can be measured as displacement, velocity, or acceleration. Velocity is the time derivative of acceleration. Acceleration is the time derivative of displacement.
27. Liquefaction is a process resulting in a soil's loss of shear strength, due to a transient excess of pore water pressure.
28. Amplification is an increase in amplitude and change in frequency content of the seismic waves with distance, because of geometric spreading, energy absorption, and scattering.
29. Hypocenter is the location of initial radiation of seismic waves (i.e., the first location of dynamic rupture).
30. Seismic beach ball is the moment generated by the forces generated on an earthquake fault during slip.
31. Amplification is the rate at which earthquake ground motion decreases with distance.
32. Sand boils or mud volcanoes are (i.e., sand, silt) carried to the surface by water, due to resonance effects.
33. Footwall is the portion of the crust that lies above the fault or fault rupture plane.
34. Accelerogram is an instrument for measuring acceleration as a function of time.
35. Nakamura's technique is based on the analysis of the spectral properties of the seismic wavefield recorded by a single one-component seismograph
36. Love waves are the major responsible for the shape of the Horizontal-to-vertical spectral ratios around resonant fundamental frequency (f_0), due to their typical polarization (also called ellipticity)
37. The origin of Rayleigh waves is Shear waves.
38. A wave starting as P, transmitted into the core, and again emerging as P, is denoted by PcP
39. Nyquist frequency or folding frequency is the half of the Nyquist frequency.
40. The shape of H/V spectral ratios is controlled by the presence of surface waves in the wave-field, with a minor contribution of surface waves.

B) Answer ONLY ONE from the following:

(10 marks)

1. Derive Snell's law for a spherically symmetric Earth.
2. Explain the principle of the Feedback circuit of a force-balance accelerometer (FBA).

End of questions

GOOD LUCK

Prof. Dr. Assem El-Haddad

Dr. Mostafa Thabet

امتحان مادة مبادئ علم الصخور (٣٢٤ ج)
الفصل الدراسي الأول - العام الجامعي ٢٠١٨/٢٠١٩

المستوى الثالث (جيوفيزياء وكيمياء- جيولوجيا)
الزمن ثلاث ساعات

ملاحظة: الامتحان في صفتين

Part one (Igneous rocks) (16.5 MARKS)

Answer **THREE** Questions **ONLY** from the followings:

- 1- Write a brief description for the following intrusive bodies: (5.5 Marks)
a- Lopoliths b- Laccoliths c- Batholiths and stocks
- 2- Mention the general lithological units of the ophiolitic sequences. (5.5 Marks)
- 3- Write briefly on classification and nomenclature of pyroclastics. (5.5 Marks)
- 4- Give short notes on the followings:- (5.5 Marks)
a- Continental crust b- Pahoehoe lavas C- Collapse calderas

Part two (Metamorphic rocks) (16.5 MARKS)

Figures must be drawn whenever possible:-

Answer this question:

(8 Marks)

- 1.A. Deep-seated syenitic and basic dykes (500m and 200m thick, respectively) intruded in unmetamorphosed pelitic rocks that had temperature 125 °C.
Calculate the maximum possible temperature attained at these distance:
Zero, 100m for intermediate dyke and 20, 100m for basic intrusion. (4 Marks)
- B. Mention the most common pyroxene, amphibole and feldspar minerals found in metamorphic rocks. (4 Marks)

Answer **ONLY ONE** of the following questions:

(8.5 Marks)

- 2.A. Define the metamorphic zone and what are the regional metamorphic zones in pelitic sediments and basic igneous rocks. (4 Marks)
- B. Discuss the mechanism of formation of these textures: (4.5 Marks)
 - Porphyroblast and porphyroblast texture.
 - Decussate texture.
 - Comment on the disappearance of foliated textures in thermally metamorphosed rocks.
- 3.A. By mineral reaction equations, illustrate the formation of the following metamorphic minerals: (4 Marks)
Cordierite – Staurolite – Garnet – Paragonite – Pyrophyllite
- B. What are the most important factors that response on the variation of metamorphic rocks, examples. (4.5 Marks)

انظر خلفه

Part three (Sedimentary rocks) (17 MARKS)

Answer the **FOLLOWING QUESTION** (إجباري): (5 Marks)

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

- 1) Glacial till that is transported within glacial ice is typically rounded in shape ().
- 2) High feldspar content in sandstone carries specific implications about source area, climate and topography ().
- 3) Layers of Mg-O/OH in a clay mineral are referred to as gibbsite layers ().
- 4) Silica cements precipitate from acid solutions at $\text{pH} < 7$ ().
- 5) Intraformational conglomerates are derived from outside the depositional basin ().
- 6) Heavy minerals typically have densities that exceed those of the common rock-forming minerals quartz and feldspar ().
- 7) Permeability refers to the volume of void space (available to contain fluid or air) in a sediment or sedimentary rock ().
- 8) Gypsum is the main mineral constituent of the carbonate minerals ().
- 9) Disturbance of sediments by organisms is known as bioturbation, which can lead to the total destruction of primary sedimentary structures ().
- 10) Oligomictic conglomerates are composed of clasts include several different rock types ().

Answer **ONLY ONE** from the following:

I- The First Question (12 Marks)

Write on the following:

- | | |
|--|------------------------------|
| A) Classification of sandstones | (3 Marks) |
| B) Definition of the following: | (4 Marks) |
| i) Roundness of the grains | ii) Sphericity of the grains |
| iii) Form of the grains | iv) Texture of the sediments |
| C) The major diagenetic processes in limestones. | (5 Marks) |

II- The Second Question (12 Marks)

Write on of the following:

- | | |
|---|-----------|
| A) Classification of conglomerates and breccias | (3 Marks) |
| B) Compare between the following: | (4 Marks) |
| i) Wackstone and grainstone. | |
| ii) Kandite group and smectite group. | |
| C) Compaction and pressure dissolution in sandstones. | (5 Marks) |

Good luck

Prof. Dr. Mahmoud A. Essa

Prof. Dr. Hussein A. Hegazy

Prof. Dr. Ali A. Khodier

Credit hour system - First semester - Final Examination

Industrial Chemistry Program

Mineral prospection and industrial minerals and rocks (Chem 305)

Third Level

2018/2019

Allowed time 2 hour

Answer FOUR questions only of the following (50M)

Q1 (12.5 M)

- i- Mention some minerals used in the construction and chemicals?
- ii- Write briefly on the application and importance of those minerals:
fluorite, talc, graphite, garnet and magnetite?

Q2 (12.5 M)

- i- Discuss the importance of electrical conductivity as an exploration technique?
- ii- Describe the various uses of zeolites?

Q3 (12.5 M)

- i- Explain the applications of industrial minerals used in paint and ceramics industry?
- ii- Explain the gravity surveys and down hole logging surveys for exploration of ores?

Q4 (12.5 M)

- i- Limestone has several industrial uses. Comment?
- iii- Mention the applications of industrial minerals in plastics and polymers industry?

ii- Q5 (12.5 M)

- i- What are green and critical minerals?
- iv- Explain the applications of industrial minerals used in adhesives and sealants industry?

بسم الله الرحمن الرحيم

Assiut University

Faculty of Science

Geology Department

جامعة أسيوط

كلية العلوم

قسم الجيولوجيا

امتحان المستوى الثالث جيولوجيا

مقرر 319 جيولوجيا - الجزء الأول (Chronostratigraphy)
25 درجة (25 Marks)

دور يناير 2019

الزمن: ساعة واحدة

Answer Two questions of the following:

1- Define the GSSP and the prerequisites to be fulfilled by a chronostratigraphic Type-Section.

1- عرف معنى القطاع الطباقى الدولى النموذجى والشروط اللازم توفرها فى هذا القطاع لتعيين الحدود الفاصلة بين الوحدات الزمنية (12,5 درجة)

2- A- Suppose that the geologic time scale is only one year made up of 12 months starting from first January to end of December. Try to arrange successively the characteristic bio-events which occurred on the Earth during this time interval. (6.5 Marks)

2- أ - افترض أن التاريخ الجيولوجى للأرض هو عام واحد فقط مدته 12 شهرا يبدأ من يناير وينتهى فى آخر ديسمبر. حاول أن ترتب زمنيا بالتوالى الأحداث البيولوجية التى جرت على وجه الأرض خلال هذه الفترة الزمنية (6,5 درجة)

2- B- Identify the following (6 Marks)

a) The Greenhouse effect

2- ب- عرف مايلى (6 درجات)

1-2- ظاهرة الدفينة (الصوبة الزجاجية)

b) Chronostratigraphic units

2- ب- الوحدات الطباقية الزمنية

c) Radioactive decay

3- ج- ظاهرة الإضمحلال الإشعاعى

3- A- Define the reasons and consequences of the climatic changes which affected the Earth during the end of the Cretaceous Period and led to the global extinction of the Dinosaurs.

3 - أ - أذكر أسباب وتداعيات الأحداث المناخية التى شهدتها الكرة الأرضية فى نهاية العصر الطباشيرى وأدت إلى الإنقراض الجماعى للديناصورات (6,5 درجة)

B- What are the sources of uncertainty of radiometric dating ?

3- ب - ماهى الصعوبات التى تواجه إستخدام العناصر المشعة فى تأريخ الصخور (6 درجة)

Good Luck - Prof. Dr. Khaled Ouda:

Jan. 20, 19

Time: 2h

Univ. of Assiut

Fac. Of Science

Dept. of Geology

Igneous Petrology (333G)

3rd Year

Answer THREE questions ONLY of the following:

1. Define briefly: Eutectic point – Incongruent melting – Fractional crystallization. (16 $\frac{1}{2}$ Marks)
2. Write what you know about the different factors affecting the diversity of igneous rocks. (17 Marks)
3. Give short notes about the petrographic provinces and rock associations. (16 $\frac{1}{2}$ Marks)
4. Illustrate graphically the classification of gabbroid rocks. (16 $\frac{1}{2}$ Marks)

Dr. M. E. Habib

Dr. O. El-Nady



Final Exam in Environmental Geophysics (G353)
(Two pages – 50 marks total)

January, 2019

Time: 2 hours

PART ONE (Electrical and Seismic Methods) – 25 marks
(Dr. Haby SalahEldin)

Answer the following questions

The First Question (15 marks)

(Answer THREE questions only)

(5 marks each)

- 1) Occurrence sand below clay or sedimentary rock below igneous rock or sandstone below limestone make a problem with refraction seismic method. **Why** and **How** can you know that and **How** can you overcome this problem?
- 2) **Compare** between seismic reflection and refraction methods?
- 3) There are three cases where a seismic interface will not be revealed by a refraction survey. **Explain that with Drawing and Examples**
- 4) How can you design a geophysical survey?

The Second Question (10 marks)

Complete the missing answer

(one mark each)

- 1) Normal Moveout defined as..... and on a t-x diagram, the Normal Moveout (NMO) produces
- 2) In case of the dipping reflector, the position and dip on a raw seismic section are incorrect due to as a result of.....
- 3) A thick clay layer separating two aquifers usually can be detected easily onbut the same clay bed may bein seismic refraction surveys and cause
- 4) Electrical imaging defined as.....
- 5) Environmental geophysical aims to..... and.....
- 6) The best method to determine the water table is.....whileconsider the best method to detect dissolved salts and sinkholes.
- 7) Ambiguity in electric sounding interpretation may be.....and.....
- 8) The refraction method is better suited for exploration than reflection method in areas where.....for example.....
- 9) Choice of the best electrode array depends on.....and.....
- 10) Migration intended to deal with.....and.....

PART TWO (Gravity and Magnetic Methods) – 25 marks
(Prof. Dr. Gamal Zidan AbdelAal)

A) Answer the following questions: (5 marks each)

1. Discuss how the generalized protocol for selecting appropriate geophysical techniques can be used to study a landfill environmental problem
2. Explain the magnetic gradiometer survey method with their advantages and limitations in near surface environmental applications

B) Answer only five of the following questions: (3 marks each)

1. The main sources of earth's magnetic field
2. Limitations of gravity method
3. Four different applications of magnetic method
4. The definition of inclination, declination and magnetic susceptibility
5. Precession and bias in gravity survey
6. Magnetic cleanliness
7. Examples for unwanted magnetic noise
8. Different applications of microgravity
9. The pitfalls in magnetic data interpretation
10. Questions that provider should ask you before conducting a magnetic survey
11. Quality control in gravity survey

Good Luck.....

Final Exam on Gravity and Magnetic Exploration (G351)

December 27, 2018

Time: 2 hours

PART ONE (GRAVITY METHOD) – 25 marks

A) Answer only five of the following questions: (Five marks each)

1. Explain three different methods of local-regional separation in gravity and why this procedure is applied
2. Summarize the different corrections applied to gravity measurements and explain three of them in details
3. Explain what is meant by Geoid and factors control the density variations for sedimentary and igneous rocks
4. Discuss the absolute and relative methods for measuring the gravity acceleration
5. Write in details three different methods for rock density determination
6. Summarize what you know about GRACE mission and its applications
7. Differentiate between the forward and inverse routines in gravity data interpretation and the ambiguity problem and how it can be resolved

Good Luck.....

Prof. Dr. **Gamal Zidan**



2018-2019 First Semester, Final Examination for 3rd Level Students

On: Gravity and Magnetic Exploration (351-G)

December 2018

Time allowed: 2 hours

PART II: MAGNETIC EXPLORATION (Total marks: 25)

Answer the following questions:

First Question: Write short notes on ONLY FIVE ITEMS of the following: (20 marks)

1. Secular variation of the Earth's magnetic field
2. Proton free-precession magnetometers
3. First and second vertical derivatives of total magnetic field
4. Hysteresis Loop
5. Types of remanent magnetization
6. Reduction to the pole and pseudo-gravity transformation
7. Fluxgate magnetometers
8. Applications of geomagnetic surveys

Second Question: Fill in the gaps in the following sentences: (5 marks)

1. rocks have the highest magnetic susceptibilities, while the rocks have intermediate to low values.
2. The study of how the Earth's magnetic field has changes through geological time is known as while the use of magnetic reversals to provide global chronometric calibration of geological events is known as
3. The vertical component of the magnetic intensity of the Earth's magnetic field varies with latitude, from a minimum of around nT at the magnetic equator to nT at the magnetic poles.
4. The geomagnetic field can be described in terms of the,, and
5. Magnetically disturbed days are marked by a rapid onset of fluctuations of the order of hundreds of nanoTeslas followed by slower but still erratic fluctuations with decreasing amplitude. These disturbances are called

==== Best of Luck,, ===== Dr. Rashad Sawires =====



جامعة أسيوط
كلية العلوم-قسم الجيولوجيا

امتحان طلاب المستوى الثالث (كيمياء و جيولوجيا)
مقرر (٣٤٥ ج) مبادئ الجيولوجيا التركيبية

الزمن : ٢ ساعة

٢ - يناير ٢٠١٩ م

PRINCIPALS OF STRUCTURAL GEOLOGY

(50 marks)

Try to illustrate your answers with suitable drawings when possible

ANSWER THE FOLLOWING FOUR QUESTIONS:

1- Write briefly on (explain your answer by drawing)

1. Using stress-strain diagrams show the difference in deformation response between elastic and plastic materials (10 mark)

II- Choose the correct answer for the following statements (9 mark)

2. The fold axis plunges: (1 mark)

- a. Very steeply.
- b. Toward the flanks of the fold.
- c. Toward the youngest rocks.
- d. None of these.

3. A fault is where the hanging wall is displaced upward relative to the footwall. (1 mark)

- a. This is a normal fault.
- b. This is a reverse fault.
- c. This is a left-lateral strike-slip fault.
- d. This is a right-lateral strike-slip fault.

4. The difference between elastic deformation and plastic deformation of rocks is that plastic deformation (is) (1 mark)

- a. Permanently alters the shape of a rock layer.
- b. Always occurs just before a rock layer breaks.
- c. A return to its original shape after the pressure is removed.
- d. All of the above.

5. The difference between a joint and a fault is (1 mark)

- a. The fault is larger.
- b. The fault is a long, far-ranging fracture, and a joint is short.
- c. Relative movement has occurred on either side of a fault.
- d. All of the above.

6. Which of the following types of tectonic forces tends to push two sides of a body in opposite directions so that they slide horizontally past one another? (1 mark)

- a. tensional forces
- b. shearing forces
- c. compressive forces
- d. none of these

7. **An overturned fold is characterized by**

(1 mark)

- a. Two limbs at right angles to one another
- b. Two limbs dipping in the same direction - with one tilted beyond vertical
- c. Two limbs dipping in opposite directions
- d. Two limbs not parallel to each other

8. **If the sedimentary rocks on a geologic map form a zigzag pattern, the underlying structure probably consists of**

(1 mark)

- a. horizontal anticlines and synclines
- b. plunging anticlines and synclines
- c. domes and basin
- d. strike slip faults

9. **Drag folds:**

(1 mark)

- a. Occur within the competent beds.
- b. Within the competent beds.
- c. Within the incompetent beds are overlain by competent beds.
- d. When vertical stresses act on horizontal beds.

10. **What is an Unconformity?**

(1 mark)

- a. Old rocks on top of young ones
- b. Young rocks on top of old ones
- c. An surface of erosion or non-deposition between two rock strata that represents a large gap time
- d. A contact between two strata where the lower rocks are poised at an angle relative to the upper
- e. None of the above

11. **Match the following; explain your answer by drawing sketch whenever possible.**

(7 mark)

- I -	- II -
1) Primary structure	a) Total displacement
2) Throw	b) When the rocks cool, they contract, and the hexagonal shape is a result of this contraction
3) Heave	c) Angle between fault plane and vertical plane.
4) Net slip	d) Horizontal dip slip
5) Why do columnar joints form	e) Structures that result from the motion in sediments before they lithified into a rock; not a result of tectonic activity
6) Hade	f) A structure formed in the absence of tectonic stress; however often related to tectonic activity
7) Non-tectonic structure	g) Vertical slip

III - **Write short notes on TWO ONLY:**

(14 marks)

- 12- List 5 evidence commonly used to identify faults in the field.
- 13- What is the difference between symmetrical, asymmetrical, overturned, and recumbent folds?
Use simple diagrams showing each, indicating the axial plane.
- 14- The different types of movements along the faults. Give examples.

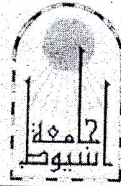
IV - **Define FIVE ONLY and illustrate by drawings where appropriate:**

(10 marks)

- 15- a. pure shear strain b. homogeneous strain c. cross-bedding
- d. Strike-slip faults e. Hinge fault f. Kink fold

GOOD LUCK

Pro. Dr. Ahmed R. El Younsy



Part One: Diagenesis (25 Marks)

Answer the following questions:

The first question: Indicate (True) or (False) in the following statements and correct the incorrect sentences: (9 marks)

1. Eogenesis refers to the earliest stage of diagenesis, which takes place at very shallow depths.
2. Solution is the process by which the volume of a sediment is reduced as the grains are squeezed together.
3. Carbonates precipitate from acid solutions, $\text{pH} < 7$
4. Geodes point to cavity or vug filled with silica or calcite.
5. Pressure dissolution at grain contacts is maximum where the sediment is cemented, before deep burial.
6. The source of the CaCO_3 , may be the pore water itself, but in marine sandstones, much is probably derived from dissolution of Diatom shells.
7. The higher content zone of kaolinite is indicative of higher porosity.
8. The microscale dissolution is fabric preserving and results secondary porosity.
9. On deep burial to greater depths, anhydrite is normally converted to gypsum.

The second question: Write only TWO of the followings (8 marks)

1. The origin of the silica for the cementation.
2. Stability of carbonate minerals.
3. Diagenesis in the phreatic zone.

The third question: Compare between only TWO of the followings (8 marks)

1. Authigenesis and bioturbation as main diagenetic processes.
2. Dissolution and neomorphism in carbonates.
3. Hematite and carbonate cementation in sandstones.

With my best wishes

Dr. Abdelhamid M. Salman

انظر خلفه - باقى الاسئلة فى الصفحات التالية

Part Two: Marine Geology (25 marks)

Answer the following questions

1. Answer the following (5 marks):

- a. What are the techniques of determining bathymetry in the oceans (2 marks)?
- b. What happens when two plates with continents at their leading edges collide? Contrast that to ocean-ocean and ocean-continent convergence boundaries? Give an example of a continent-continent collision (3 marks)?

2. Answer the following (5 marks):

- a. Describe in detail the different steps of coral reef development (2.5 marks).
- b. Write short notes on convergent plate boundaries (2.5 marks).

3. Fill in the given spaces (5 marks):

- a. Boundaries where plates collide and one subducts beneath the other are called.....boundaries. Lithospheric plates also move past one another along shear orboundaries (One mark).
- b. Increasing sediment maturity is indicated by,and (One mark).
- c. Waves in which $d < L/20$ are classified as (long waves) such as(seismic sea waves), generated by disturbances in the ocean floor and generated by gravitational attraction of the sun and moon (One mark).
- d. has an average density of about 3.0 g/cm^3 . The continents are composed of granitic crustal material of an average density g/cm^3 . The continental blocks and basaltic oceanic crust "float" on the denser mantle beneath. This concept of crustal flotation is called(One mark).
- e. New ocean floor forms at It then is carried away from the axes of such features, and volcanic processes fill the void with yet a younger strip of ocean floor. Thus, the axes of oceanic ridges and rises are referred to as or (One mark).

4. True or false (5 marks):

- a. The shelf break is the edge of the continental shelf. It marks an abrupt change in slope of the sea floor (One mark).
- b. The plate boundaries where new lithosphere is being added along oceanic ridges are destructive or convergent boundaries (One mark).
- c. Deep water waves travel across the ocean where the water depth (d) is greater than one-half the wavelength (One mark).
- d. Turbidity current is a type of short current (One mark).

e. The depth at which calcium carbonate is dissolved as fast as it falls from above is the carbonate compensation depth (CCD) (One mark).

5. Choose the correct answer (5 marks)

1- Pelagic sediments consist of(One mark):

- a. reddish-brown clays derived from the continents.
- b. foraminiferal oozes.
- c. silica oozes.
- d. all of these.
- e. none of the above.

2- Turbidity current is a type of(One mark):

- a. deep current.
- b. steep current.
- c. long current.
- d. short current.
- e. none of the above.

3- Large fan-shaped deposits of fine-grained sediments that accumulate on the continental rise are called.....(One mark):

- a. submarine fans.
- b. atolls.
- c. alluvial fans.
- d. spits.
- e. trenches.

4- Deep valleys eroded into the continental slope and shelf are called..... (One mark)

- a. estuaries.
- b. submarine canyons.
- c. oceanic trenches.
- d. abyssal valleys.
- e. none of the above.

5- Biogenous sediments are.....(One mark)

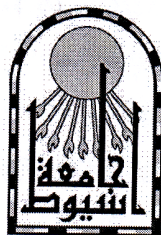
- a. they had long been thought to have been shed from meteors entering Earth's atmosphere.
- b. they form in the asteroid belt as sparks produced when asteroids collide and rain down on Earth as a general component of space dust.
- c. these deposits are formed by a chemical reaction that occurs within seawater.
- d. none of the above.
- e. all the above.

=====

Good Luck

Dr. Abdalla El Ayyat

*Assiut University
Faculty of Science
Geology Department*



*Time: 2 hours
January 2019
First Semester Exam.*

Subject: Sedimentary Environments and Sedimentary Basins (335 G)

Answer the following questions:

(50 Marks)

1. Which of the following is true and which is false, correct the false ones: (10 Marks)
- 1A- Sediment load and type is one of the main processes influencing delta depositional systems ()
 - 1B- Sedimentary basins are formed either due to erosional or tectonic effects ()
 - 1C- Soil treatment sediments are well documented in the Red Sea and Nile Valley of Egypt ()
 - 1D- The Quseir Formation of Egypt was deposited in marginal environment ()
 - 1E- Phosphorites and glauconites of Egypt were accumulated in marine environment ()
 - 1F- Marine sediments are exclusively formed within the basin of deposition ()
 - 1G- Oil shale in Egypt was accumulated in non-marine setting ()
 - 1H- Roundness and sorting of sediments can't be used in environmental interpretation ()
 - 1I- Marine shales are the most important raw materials required for cement industry ()
 - 1J- Rift basins are related to plate convergence ()

← ٤٤٤

2. Answer only ONE question of the following: (5 Marks)

A. Define the following:

- Delta plain deposits
- Inactive sedimentary basins
- Overbank sediments
- Cosmogenous materials
- Allocycles

B. Paleozoic industrial materials are well documented in the sedimentary record of Egypt, mention briefly on the following:

a- Material types

b- Locality

c- Depositional environments

d- Industrial applications

3. Industrial materials were laid down in Egypt under different environmental conditions, illustrate the environment of the following: (5 Marks)

- Dolomite
- Gypsum
- Placer deposits
- Limestones
- Coal deposits

4. The sedimentary basins are important sites for hydrocarbon accumulations; mention the main sedimentary basins of the Northwestern Desert and the Nile Valley of Egypt. (6 Marks)

5. The development of basin fills are controlled by many factors, mention these. (7 Marks)

6. The formation of sedimentary basins are controlled by the interplay between tectonics and sedimentary processes, write on these illustrating with drawings the different types. (6 Marks)

7. The interpretation of ancient sedimentary environments needs some important features, write on these mentioning the common classification of sedimentary environments. (8 Marks)

8. Why are depositional environments important? (3 Marks)

Ezzat A. Ahmed

Good luck



كلية العلوم-قسم الجيولوجيا



جامعة أسيوط

الامتحان النهائي لمقرر (٣٤٠ ج)
ميكانيكا الصخور و جيولوجيا تركيبية

الزمن : ٣ ساعات

يناير ٢٠١٩

PART I: Rock Mechanics (15 marks)

Write short notes on the following:

- 1- Ductile behavior (1 mark)
- 2- Brittle behavior (1 mark)
- 3- Cataclastic flow (1 mark)
- 4- Homogeneous strain (5 marks)

Choose the correct answer of the following: (7 marks)

1-Main focus is how rocks respond to applied stresses:

- a-Gravity b-Mantle convection c-Plate tectonics d-Diapiric movements:
magma, salt diapirs e- All of the above f- not all of the above

2-Mechanical properties of rocks are modified by

- a-Confining pressure b-Temperature c-The time factor
d-The presence of reacting solutions e- All of the above f- not all of the above

3-Long continued stress the rocks become

- a-much weaker b- much strong c- both

4-Isotropic materials, that is, rocks whose mechanical properties were

- a-uniform in all directions b- form in all directions

5-Isotropic materials contain

- a-banding, or foliation b- no banding, or foliation

6-Ductile behavior can involve

- a- bend b- flow c- foliation d- lineation e- boudinage
f- mylonite g- All of the above h- not all of the above

7- Dislocation glide, dislocation creep, diffuse mass transfer, grain-boundary sliding and superplasticity are related to :

- a-elastic b-plastic c-brittle

Prof. Dr. M.A. Hassan

(باقي الأسئلة في الصفحة التالية)

PART II: STRUCTURAL GEOLOGY (35 marks)

Try to Illustrate your answers with suitable drawings when possible

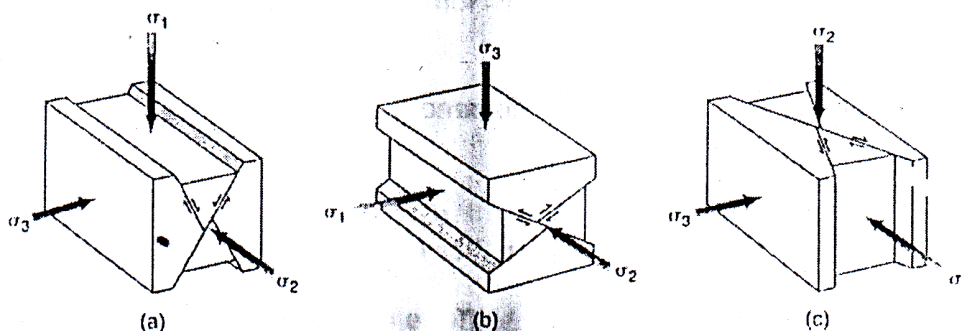
ANSWER THE FOLLOWING FIVE QUESTIONS:

I. Choose the correct answer for the following statements and then rewrite in your answer paper

(1 mark each)

- 1- A non- cylindrical fold is characterized by
a- curved hinge line b- straight hinge line c- refolded hinge line
- 2- Parallel folds
a- maintain constant layer thickness across the folded surface.
b- the layer thickness parallel to the axial surface remains constant.
c- inter-limb angles are equal.
- 3- On a scissors fault the hanging-wall block rotates around an axis that is
a- parallel to the fault surface b- perpendicular to the fault surface
c- oblique to the fault surface
- 4- The angle between fold limbs in the profile plane is called the
interlimb angle - true dip angle - vergence angle
- 5 - The horizontal component of dip separation is called.....
Throw - Heave - dip slip

II. A) Using the figures below, explain the Anderson's theory of faulting. (6 marks)

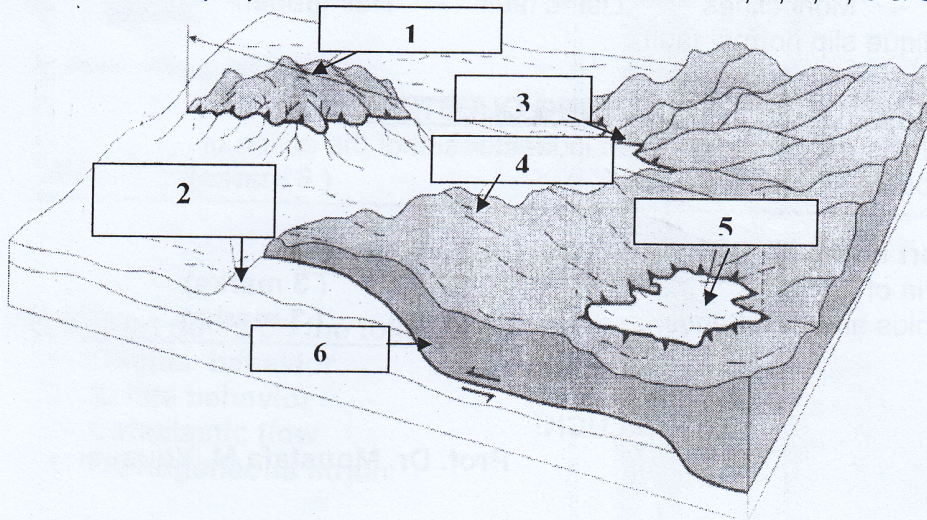


III- Write a short article on Salt domes and their economic importance. (5 marks)

(باقي الأسئلة في الصفحة التالية)

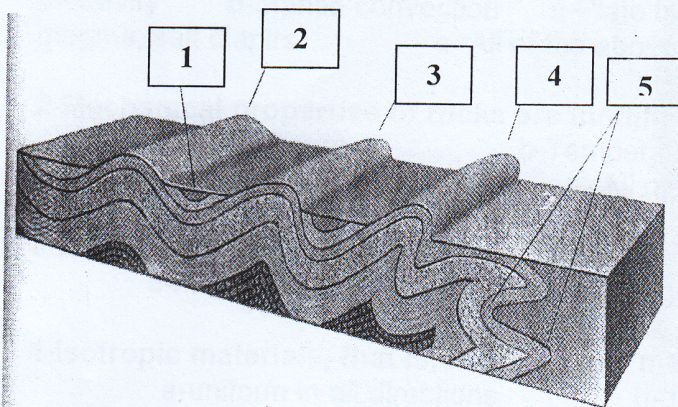
IV. Using the figures below, answer the following: (8 marks)

(A) Write the proper name of each structural feature 1, 2, 3, 4, 5 & 6. (3 marks)



(B) Write the name of each fold type

(2.5 marks)

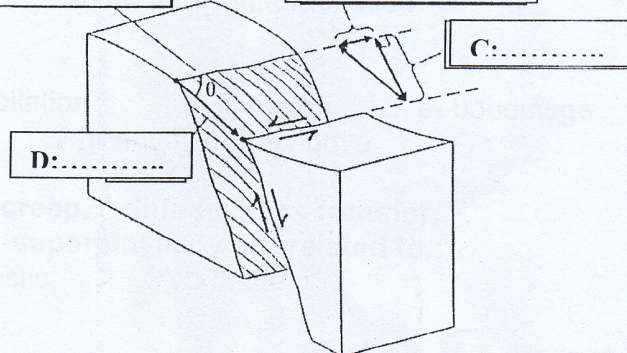


(C) a) What is the type of the fault?

A:.....

B:.....

b) show the different fault-slip components in the blank rectangles (2.5 marks)



(باقي الأسئلة في الصفحة التالية)

V- Define and illustrate by drawings:

(5 marks)

Kink folds – Monoclines – Listric fault – Half graben-
Strike Oblique slip normal fault .

ANSWER Only ONE OF THE FOLLOWING QUESTIONS:

VI- Explain how folds may develop as an indirect result of the action of a shearing couple.

(6 marks)

VII - Write short notes on

a- Field criteria of faults.

(3 marks)

b- Parasitic folds and kink bands.

(3 marks)

GOOD LUCK!

Prof. Dr. Moustafa M. Youssef

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الثالث بكلية العلوم شعبة الجيولوجيا

(Micropaleontology & Historical Geology, 315G)

الزمن: ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2019م

I- Micropaleontology (35 Marks)

السؤال الأول: (10 درجات)

- 1- Discuss the effect of salinity, alkalinity, temperature and light on the distribution of foraminifera.
- 2- Compare between **Two Only** of the following:
 - a- Radiolaria and Ostracoda.
 - b- Freshwater and marine Ostracoda.
 - c- Coccoliths and diatoms.

السؤال الثاني: (10 درجات)

- 1- Discuss by drawing the different types of conodonts.
- 2- Write an essay on the agglutinated foraminifera.
- 3- Discriminate by drawing the different hinge in Ostracoda.
- 4- Illustrate by drawing the alternation of generations in foraminifera (dimorphism).

السؤال الثالث: (5 درجات)

Mark the correct and the wrong statements, and correct the wrong:

- 1- Prasinophytes are considered as the ancestral to all the green algae.
- 2- Acritarch assemblages are only confined to nearshore marine conditions.
- 3- Chitinozoan first appeared in the early Ordovician and has a post Devonian biostratigraphic importance.
- 4- Aperture in pollen grains is located in the proximal face of the grain.
- 5- Artificial "non-biological" classifications of spores and pollen grains are useful for Cenozoic material.

السؤال الرابع: (5 درجات)

Choose the correct answer:

- 1- Fossil dinoflagellates is now accepted to be classified according to:
 - a- International Code of Botanical Nomenclature (ICBN) as algae
 - b- International Code of Zoological Nomenclature (ICZN) as protozoans
 - c- Both (ICBN) and (ICZN)

- 2- Criteria used in classification of spore/pollen grains are:
 a- type of aperture b- grain shape c- grain sculpture d- grain size e- all of them
- 3- Palynological extraction procedures are complex but adaptable to rock types such as:
 a- argillates and silicates b- evaporites and carbonates c- Holocene peat d- all of them
- 4- In an idealized life cycle of dinoflagellate, the stage of combined sexual and asexual reproductions is represented by:
 a- motile diploid stage b- motile haploid stage c- motile diploid stage d- all of them
- 5- Informal groupings (classification) of acritarchs have been established on:
 a- wall structure and morphology of vesicle b- type of excystment opening
 c- presence or absence of processes d- ornamentation e- all of them

السؤال الخامس: (5 درجات)

Write briefly on Two Only of the following:

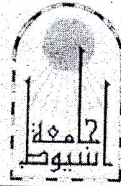
- 1- Definition, taxonomy, morphology, and ecology of prasinophytes and acritarchs (with drawings).
- 2- Non-acid versus the standard HCl/HF palynological processing techniques.
- 3- Amb, aperture, and symmetry in fossil pollen grains (with drawings).

II- Historical Geology (15 Marks)

أجب عن الأسئلة الآتية:
السؤال الأول: (5 درجات)

Choose the correct answer:

- 1- Which of the following represents the longest time period?
 a- Mesozoic b- Paleozoic c- Precambrian d- Cenozoic
- 2- The Paleozoic Era does not include thePeriod.
 a. Ordovician b- Permian c- Cretaceous d- Devonian
- 3- The group which shows a correct sequence of the geologic column is:
 a- Paleocene, Eocene, Oligocene b- Cambrian, Silurian, Ordovician,
 c- Devonian, Permian, Carboniferous d- Jurassic, Cretaceous, Triassic
- 4- Geologically, which came first?
 a- appearance of flowering plants b- extinction of dinosaur
 c- extinction of trilobites d- appearance of fish
- 5- The boundaries between seem to coincide with major changes in the life forms present on Earth. a- ages b- eras c- epochs d- series



Part One: Diagenesis (25 Marks)

Answer the following questions:

The first question: Indicate (True) or (False) in the following statements and correct the incorrect sentences: (9 marks)

1. Eogenesis refers to the earliest stage of diagenesis, which takes place at very shallow depths.
2. Solution is the process by which the volume of a sediment is reduced as the grains are squeezed together.
3. Carbonates precipitate from acid solutions, $\text{pH} < 7$
4. Geodes point to cavity or vug filled with silica or calcite.
5. Pressure dissolution at grain contacts is maximum where the sediment is cemented, before deep burial.
6. The source of the CaCO_3 , may be the pore water itself, but in marine sandstones, much is probably derived from dissolution of Diatom shells.
7. The higher content zone of kaolinite is indicative of higher porosity.
8. The microscale dissolution is fabric preserving and results secondary porosity.
9. On deep burial to greater depths, anhydrite is normally converted to gypsum.

The second question: Write only TWO of the followings (8 marks)

1. The origin of the silica for the cementation.
2. Stability of carbonate minerals.
3. Diagenesis in the phreatic zone.

The third question: Compare between only TWO of the followings (8 marks)

1. Authigenesis and bioturbation as main diagenetic processes.
2. Dissolution and neomorphism in carbonates.
3. Hematite and carbonate cementation in sandstones.

With my best wishes

Dr. Abdelhamid M. Salman

انظر خلفه - باقى الاسئلة فى الصفحات التالية

Part Two: Marine Geology (25 marks)

Answer the following questions

1. Answer the following (5 marks):

- a. What are the techniques of determining bathymetry in the oceans (2 marks)?
- b. What happens when two plates with continents at their leading edges collide? Contrast that to ocean-ocean and ocean-continent convergence boundaries? Give an example of a continent-continent collision (3 marks)?

2. Answer the following (5 marks):

- a. Describe in detail the different steps of coral reef development (2.5 marks).
- b. Write short notes on convergent plate boundaries (2.5 marks).

3. Fill in the given spaces (5 marks):

- a. Boundaries where plates collide and one subducts beneath the other are called.....boundaries. Lithospheric plates also move past one another along shear orboundaries (One mark).
- b. Increasing sediment maturity is indicated by,and (One mark).
- c. Waves in which $d < L/20$ are classified as (long waves) such as(seismic sea waves), generated by disturbances in the ocean floor and generated by gravitational attraction of the sun and moon (One mark).
- d. has an average density of about 3.0 g/cm^3 . The continents are composed of granitic crustal material of an average density g/cm^3 . The continental blocks and basaltic oceanic crust "float" on the denser mantle beneath. This concept of crustal flotation is called(One mark).
- e. New ocean floor forms at It then is carried away from the axes of such features, and volcanic processes fill the void with yet a younger strip of ocean floor. Thus, the axes of oceanic ridges and rises are referred to as or (One mark).

4. True or false (5 marks):

- a. The shelf break is the edge of the continental shelf. It marks an abrupt change in slope of the sea floor (One mark).
- b. The plate boundaries where new lithosphere is being added along oceanic ridges are destructive or convergent boundaries (One mark).
- c. Deep water waves travel across the ocean where the water depth (d) is greater than one-half the wavelength (One mark).
- d. Turbidity current is a type of short current (One mark).

e. The depth at which calcium carbonate is dissolved as fast as it falls from above is the carbonate compensation depth (CCD) (One mark).

5. Choose the correct answer (5 marks)

1- Pelagic sediments consist of(One mark):

- a. reddish-brown clays derived from the continents.
- b. foraminiferal oozes.
- c. silica oozes.
- d. all of these.
- e. none of the above.

2- Turbidity current is a type of(One mark):

- a. deep current.
- b. steep current.
- c. long current.
- d. short current.
- e. none of the above.

3- Large fan-shaped deposits of fine-grained sediments that accumulate on the continental rise are called.....(One mark):

- a. submarine fans.
- b. atolls.
- c. alluvial fans.
- d. spits.
- e. trenches.

4- Deep valleys eroded into the continental slope and shelf are called..... (One mark)

- a. estuaries.
- b. submarine canyons.
- c. oceanic trenches.
- d. abyssal valleys.
- e. none of the above.

5- Biogenous sediments are.....(One mark)

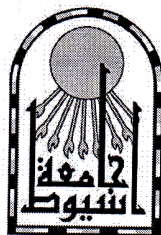
- a. they had long been thought to have been shed from meteors entering Earth's atmosphere.
- b. they form in the asteroid belt as sparks produced when asteroids collide and rain down on Earth as a general component of space dust.
- c. these deposits are formed by a chemical reaction that occurs within seawater.
- d. none of the above.
- e. all the above.

=====

Good Luck

Dr. Abdalla El Ayyat

*Assiut University
Faculty of Science
Geology Department*



*Time: 2 hours
January 2019
First Semester Exam.*

Subject: Sedimentary Environments and Sedimentary Basins (335 G)

Answer the following questions:

(50 Marks)

1. Which of the following is true and which is false, correct the false ones: (10 Marks)
- 1A- Sediment load and type is one of the main processes influencing delta depositional systems ()
 - 1B- Sedimentary basins are formed either due to erosional or tectonic effects ()
 - 1C- Soil treatment sediments are well documented in the Red Sea and Nile Valley of Egypt ()
 - 1D- The Quseir Formation of Egypt was deposited in marginal environment ()
 - 1E- Phosphorites and glauconites of Egypt were accumulated in marine environment ()
 - 1F- Marine sediments are exclusively formed within the basin of deposition ()
 - 1G- Oil shale in Egypt was accumulated in non-marine setting ()
 - 1H- Roundness and sorting of sediments can't be used in environmental interpretation ()
 - 1I- Marine shales are the most important raw materials required for cement industry ()
 - 1J- Rift basins are related to plate convergence ()

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2. Answer only ONE question of the following: (5 Marks)

A. Define the following:

- Delta plain deposits
- Inactive sedimentary basins
- Overbank sediments
- Cosmogenous materials
- Allocycles

B. Paleozoic industrial materials are well documented in the sedimentary record of Egypt, mention briefly on the following:

a- Material types

b- Locality

c- Depositional environments

d- Industrial applications

3. Industrial materials were laid down in Egypt under different environmental conditions, illustrate the environment of the following: (5 Marks)

- Dolomite
- Gypsum
- Placer deposits
- Limestones
- Coal deposits

4. The sedimentary basins are important sites for hydrocarbon accumulations; mention the main sedimentary basins of the Northwestern Desert and the Nile Valley of Egypt. (6 Marks)

5. The development of basin fills are controlled by many factors, mention these. (7 Marks)

6. The formation of sedimentary basins are controlled by the interplay between tectonics and sedimentary processes, write on these illustrating with drawings the different types. (6 Marks)

7. The interpretation of ancient sedimentary environments needs some important features, write on these mentioning the common classification of sedimentary environments. (8 Marks)

8. Why are depositional environments important? (3 Marks)

Ezzat A. Ahmed

Good luck



كلية العلوم-قسم الجيولوجيا



جامعة أسيوط

الامتحان النهائي لمقرر (٣٤٠ ج)
ميكانيكا الصخور و جيولوجيا تركيبية

الزمن : ٣ ساعات

يناير ٢٠١٩

PART I: Rock Mechanics (15 marks)

Write short notes on the following:

- 1- Ductile behavior (1 mark)
- 2- Brittle behavior (1 mark)
- 3- Cataclastic flow (1 mark)
- 4- Homogeneous strain (5 marks)

Choose the correct answer of the following: (7 marks)

1-Main focus is how rocks respond to applied stresses:

- a-Gravity b-Mantle convection c-Plate tectonics d-Diapiric movements:
magma, salt diapirs e- All of the above f- not all of the above

2-Mechanical properties of rocks are modified by

- a-Confining pressure b-Temperature c-The time factor
d-The presence of reacting solutions e- All of the above f- not all of the above

3-Long continued stress the rocks become

- a-much weaker b- much strong c- both

4-Isotropic materials, that is, rocks whose mechanical properties were

- a-uniform in all directions b- form in all directions

5-Isotropic materials contain

- a-banding, or foliation b- no banding, or foliation

6-Ductile behavior can involve

- a- bend b- flow c- foliation d- lineation e- boudinage
f- mylonite g- All of the above h- not all of the above

7- Dislocation glide, dislocation creep, diffuse mass transfer,
grain-boundary sliding and superplasticity are related to :

- a-elastic b-plastic c-brittle

Prof. Dr. M.A. Hassan

(باقي الأسئلة في الصفحة التالية)

PART II: STRUCTURAL GEOLOGY (35 marks)

Try to Illustrate your answers with suitable drawings when possible

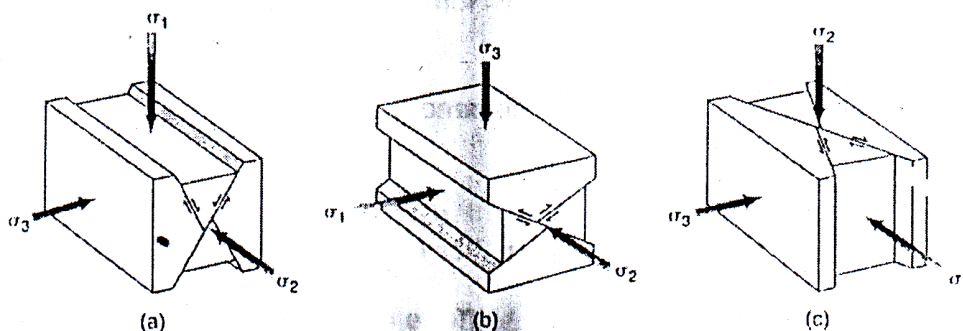
ANSWER THE FOLLOWING FIVE QUESTIONS:

**I. Choose the correct answer for the following statements
and then rewrite in your answer paper**

(1 mark each)

- 1- A non- cylindrical fold is characterized by
a- curved hinge line b- straight hinge line c- refolded hinge line
- 2- Parallel folds
a- maintain constant layer thickness across the folded surface.
b- the layer thickness parallel to the axial surface remains constant.
c- inter-limb angles are equal.
- 3- On a scissors fault the hanging-wall block rotates around an axis
that is
a- parallel to the fault surface b- perpendicular to the fault surface
c- oblique to the fault surface
- 4- The angle between fold limbs in the profile plane is called the
interlimb angle - true dip angle - vergence angle
- 5 - The horizontal component of dip separation is called.....
Throw - Heave - dip slip

II. A) Using the figures below, explain the Anderson's theory of faulting. (6 marks)

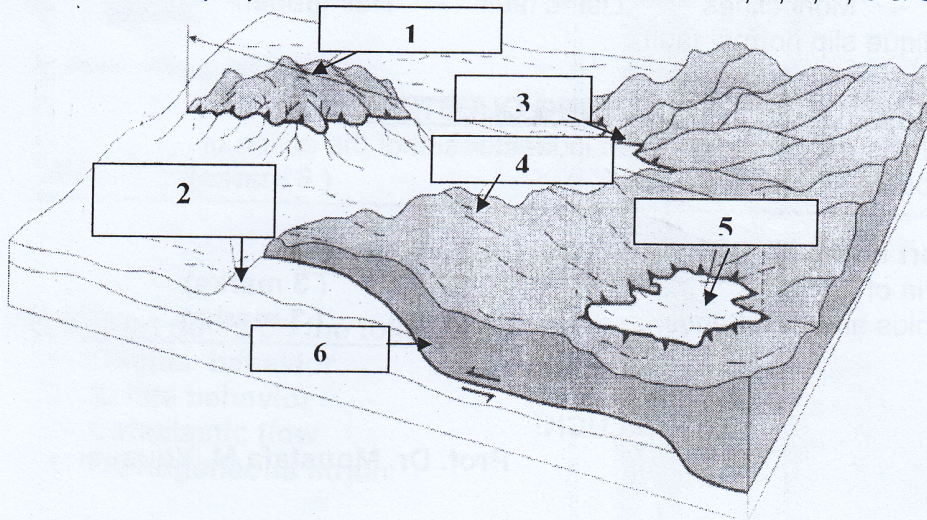


III- Write a short article on Salt domes and their economic importance. (5 marks)

(باقي الأسئلة في الصفحة التالية)

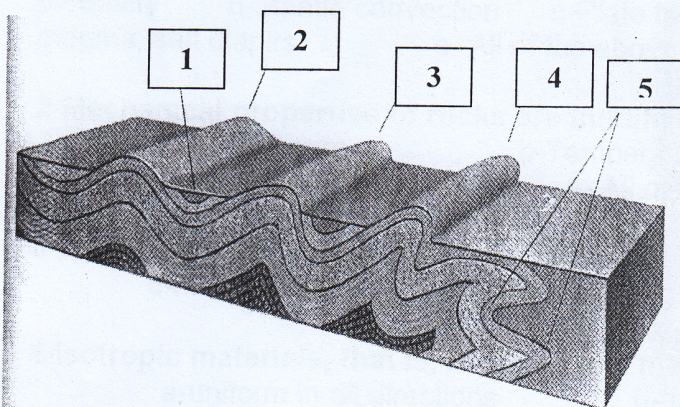
IV. Using the figures below, answer the following: (8 marks)

(A) Write the proper name of each structural feature 1, 2, 3, 4, 5 & 6. (3 marks)



(B) Write the name of each fold type

(2.5 marks)

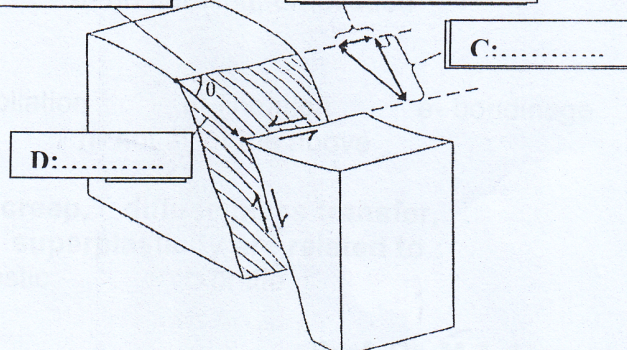


(C) a) What is the type of the fault?

A:.....

B:.....

b) show the different fault-slip components in the blank rectangles (2.5 marks)



(باقي الأسئلة في الصفحة التالية)

V- Define and illustrate by drawings: (5 marks)

Kink folds – Monoclines – Listric fault – Half graben-
Strike Oblique slip normal fault .

ANSWER Only ONE OF THE FOLLOWING QUESTIONS:

VI- Explain how folds may develop as an indirect result of the action of a shearing couple. (6 marks)

VII - Write short notes on

a- Field criteria of faults.

(3 marks)

b- Parasitic folds and kink bands.

(3 marks)

GOOD LUCK!

Prof. Dr. Moustafa M. Youssef

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الثالث بكلية العلوم شعبة الجيولوجيا

(Micropaleontology & Historical Geology, 315G)

الزمن: ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2019م

I- Micropaleontology (35 Marks)

السؤال الأول: (10 درجات)

- 1- Discuss the effect of salinity, alkalinity, temperature and light on the distribution of foraminifera.
- 2- Compare between **Two Only** of the following:
 - a- Radiolaria and Ostracoda.
 - b- Freshwater and marine Ostracoda.
 - c- Coccoliths and diatoms.

السؤال الثاني: (10 درجات)

- 1- Discuss by drawing the different types of conodonts.
- 2- Write an essay on the agglutinated foraminifera.
- 3- Discriminate by drawing the different hinge in Ostracoda.
- 4- Illustrate by drawing the alternation of generations in foraminifera (dimorphism).

السؤال الثالث: (5 درجات)

Mark the correct and the wrong statements, and correct the wrong:

- 1- Prasinophytes are considered as the ancestral to all the green algae.
- 2- Acritarch assemblages are only confined to nearshore marine conditions.
- 3- Chitinozoan first appeared in the early Ordovician and has a post Devonian biostratigraphic importance.
- 4- Aperture in pollen grains is located in the proximal face of the grain.
- 5- Artificial "non-biological" classifications of spores and pollen grains are useful for Cenozoic material.

السؤال الرابع: (5 درجات)

Choose the correct answer:

- 1- Fossil dinoflagellates is now accepted to be classified according to:
 - a- International Code of Botanical Nomenclature (ICBN) as algae
 - b- International Code of Zoological Nomenclature (ICZN) as protozoans
 - c- Both (ICBN) and (ICZN)

- 2- Criteria used in classification of spore/pollen grains are:
 a- type of aperture b- grain shape c- grain sculpture d- grain size e- all of them
- 3- Palynological extraction procedures are complex but adaptable to rock types such as:
 a- argillates and silicates b- evaporites and carbonates c- Holocene peat d- all of them
- 4- In an idealized life cycle of dinoflagellate, the stage of combined sexual and asexual reproductions is represented by:
 a- motile diploid stage b- motile haploid stage c- motile diploid stage d- all of them
- 5- Informal groupings (classification) of acritarchs have been established on:
 a- wall structure and morphology of vesicle b- type of excystment opening
 c- presence or absence of processes d- ornamentation e- all of them

السؤال الخامس: (5 درجات)

Write briefly on Two Only of the following:

- 1- Definition, taxonomy, morphology, and ecology of prasinophytes and acritarchs (with drawings).
- 2- Non-acid versus the standard HCl/HF palynological processing techniques.
- 3- Amb, aperture, and symmetry in fossil pollen grains (with drawings).

II- Historical Geology (15 Marks)

أجب عن الأسئلة الآتية:
السؤال الأول: (5 درجات)

Choose the correct answer:

- 1- Which of the following represents the longest time period?
 a- Mesozoic b- Paleozoic c- Precambrian d- Cenozoic
- 2- The Paleozoic Era does not include thePeriod.
 a. Ordovician b- Permian c- Cretaceous d- Devonian
- 3- The group which shows a correct sequence of the geologic column is:
 a- Paleocene, Eocene, Oligocene b- Cambrian, Silurian, Ordovician,
 c- Devonian, Permian, Carboniferous d- Jurassic, Cretaceous, Triassic
- 4- Geologically, which came first?
 a- appearance of flowering plants b- extinction of dinosaur
 c- extinction of trilobites d- appearance of fish
- 5- The boundaries between seem to coincide with major changes in the life forms present on Earth. a- ages b- eras c- epochs d- series

- 6 - What was the source of rising oxygen levels in the Archean atmosphere?
- a- volcanic outgass b- photosynthesis by cyanobacteria
c- chemical weathering of iron oxides d- all the previous
- 7- Land plants appeared during the.....Period.
- a- Triassic b- Silurian c- Devonian b- Cambrian
- 8- Invertebrate first appeared in the.....Era.
- a- Protterozoic b- Archeozoic c- Paleozoic b- Mesozoic
- 9- Lung fish first appeared in the.....Period.
- a- Permian b- Cambrian c- Ordovician d- Devonian
- 10- The contact between sedimentary rocks that overlies igneous or metamorphic rocks is termed.....
- a- a disconformity b- an angular unconformity
c- a nonconformity d- a paraconformity

السؤال الثاني: (5 درجات)

Give reasons for the following:

- a- The accumulation of evaporate sediments in Siberia during the early Paleozoic.
b- The formation of Caledonian Mountains.
c- The formation of Ural Mountains.
d- The occurrence of tillite deposits during the Neoproterozoic time.

السؤال الثالث: (5 درجات)

- a- **Compare between** the facies and biota of Ordovician and Silurian periods.
b- Discuss the evolution of the Earth's atmosphere through time.
c- Explain the evidence of life in the Archean Era.

تمت الأسئلة مع التمنيات بالتوفيق

ا.د. ناجح عبدالرحمن عبيدالله , د. عمرو سعيد ضيف



Summer Semester Examination
Sedimentary Rocks ((327G))
Students: 3rd level of Geology, all branches

Answer only **FOUR** questions, extra answers will not be considered

Question no. (1). Choose the correct answer (6.25 marks):

1. If a sandstone includes less than 15 percent matrix, and is composed of >90 percent quartz, then it is called a(1.25 marks).

- a. Feldspathic arenite b. Quartz arenite c. Quartz wacke
d. Litharenite e. Quartz siltone

2. The angularity of the edges and corners of grains in a sedimentary rock is referred to as.....(1 mark).

- a. Roughness b. Smoothness c. Rounding
d. abruptness e. None of the above

3. While looking at a rock under a microscope you observed bits of shell. What organic sedimentary rock might you have been looking at.....(1 mark).

- a. Chert b. Quartz c. Coal d. Limestone

4. When fine-grained sediments at bottom of shallow water are exposed to air, they dry out to form structures known as.....(1 mark).

- a. Ripple cracks b. Water marks c. Ripple marks d. Mud cracks

5. Type of bedding where sorting and arrangement has occurred based on grain size is.....(1 mark).

- a. Cross bedding b. Lamination c. Graded bedding d. Mud cracks

6. Classification of sedimentary rocks on basis of its composition includes.....(1 mark).

- a. Carbonate sedimentary rocks b. Iron-rich sedimentary rocks
c. Organic-rich sedimentary rocks d. All of above

Question no. (2). True or false (6.25 marks):

a. Polymictic conglomerates are those with several or many different types of clast, but oligomictic conglomerates are those with just one type of clast (1 mark).

- b. The shape of a grain includes four classes (spheres, discs, blades and rods) based on ratios involving the long (L), intermediate (I) and short axes (S) (1 mark).
- c. A coarsening upward is a type of stratification in which there is a progressive decrease in the grain-size upwards through the bed (1.25 marks).
- d. Minerals that are very stable at the Earth's surface are minerals that either form as a result of chemical weathering, or crystallize at the lowest temperatures (1 mark).
- e. Cubic packing in medium sand has a porosity of about 48%, whereas rhombohedral packing for the same sand will have a porosity of about 26% (1 mark).
- f. Texture refers to the geometric properties of the mineral components in a rock. It includes the size, shape and arrangement of these components (1 mark).

Question no. (3). Fill in the spaces with appropriate terms (6.25 marks):

- a. A common place to find conglomerate is (1 mark).
- b. refers to the angularity of particle outline but measures the degree to which a grain approaches a perfect sphere (1 mark).
- c. The two main classes of sandstone are.....contain less than 15% clay or matrix, whereas.....have more than 15% matrix (1 mark).
- d. composed of rounded particles indicating some degree of transport (mountain stream) but composed of angular fragments indicating that they did not travel far from their source (1 mark).
- e. The four components of sedimentary rocks are.....;.....;..... and..... (1 mark).
- f. Water is the most common agent of transport, sediments may be carried by four mechanisms. These mechanisms are.....;.....;.....and.....(1.5 marks).

Question no. (4). Write in detail on the following items (6.25 marks):

- a. Classification of sandstones (2.25 marks).
- b. Different agents of sediment transport (2 marks).
- c. Grain fabric (2 marks).

Question no. (5). Write in detail on the following items (6.25 marks):

- a. Porosity of sedimentary rocks (2 marks).
- b. Slump structures (2.25 marks).
- c. Non-skeletal limestone grains (2 marks).

Good Luck

Abdalla El Ayyat

University of Assiut
Faculty of Science
Department of Geology

**3rd Level Examination for Geology students
In Field Geology (306G), Summer Semester**

Time: Two Hours

50 Marks

August, 2018

ملحوظة هامة: الأمتحان يتكون من صفحتين

Answer the following questions:

First Question (10 Marks)

- 1- Choose the correct answer: (5 Marks, one Mark for each)
- i- Which of the following is NOT a type of sedimentary structure?
a- rain prints b- graded bedding c- ripple marks d- lithology
 - ii- A short time break or a change in sediment type in a depositional environment results in the creation ofbetween individual beds.
a- an unconformity
c- a bedding plane
b- a graded bed
d- an intrusive contact
 - iii- Which of the following descriptions is NOT correct when talking about graded bedding?
a- graded beds can be formed on a river bed during floods.
b- there is a gradual change in sediment size throughout a bed.
c- small sediment grains are at the bottom and large grains are at the top.
d- graded beds are often associated with turbidity currents on ocean slopes.
 - iv- Field work include sampling of rock types for
a- elemental analysis b- geochronology
c- fossil identifications d- all of these
 - v- Which of the following statements about paleocurrents is FALSE?
a- cross-bedding can be used to determine a paleocurrent
b- cross-beds are inclined downwards in the direction of the paleocurrent
c- a paleocurrent refers to an ancient wind or water flow direction
d- ripple marks are indicators of paleocurrents
- 2- Define two ONLY of the following terms: (2 Marks)
- i- Flute mark ii- cone-in-cone structure iii- Concretion
- Discriminate between thy three types of rocks. (3 Marks)

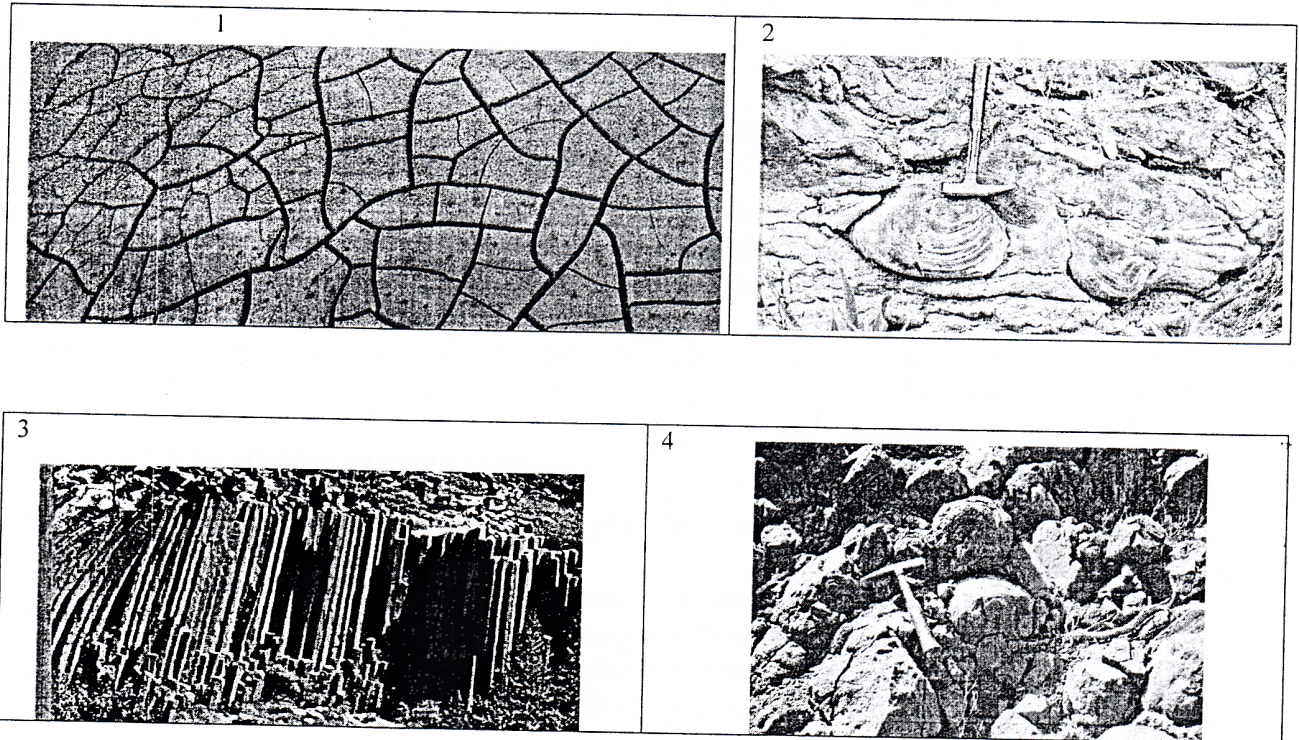
Second Question (10 Marks)

- i- Explain the stratigraphic cross sections (illustrate your answer by drawing)
- ii- Summarize the applications of Brantun Compass.

Third Question (15 Marks)

Redraw the showing geological photographs in a table and compare between them according to the following statements:

- i- Name and type of the geological structure
- ii- The formation of each one
- iii- The geological implication of each one



Fourth Question (15 Marks)

- i- Write an essay on the contact between the the geologic units, illustrate your answer by drawing. (7 Marks)
- ii- Discuss the objectives of the geological field mapping. (4 Marks)
- iii- Explain the criteria of unconformities. (4 Marks)

----- **GOOD LUCK** -----
Prof. Dr. Nageh A. Obaidalla