

بسم الله الرحمن الرحيم

جامعة أسيوط

كلية العلوم - قسم الجيولوجيا

امتحان التحرير لطلاب المستوى الرابع جيولوجيا البترول

المادة: (Chrono- and Bio-stratigraphy, 316 GP)

الزمن: ساعتان

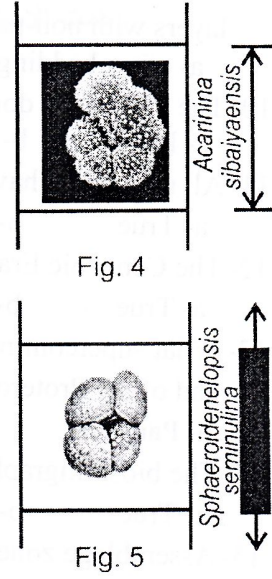
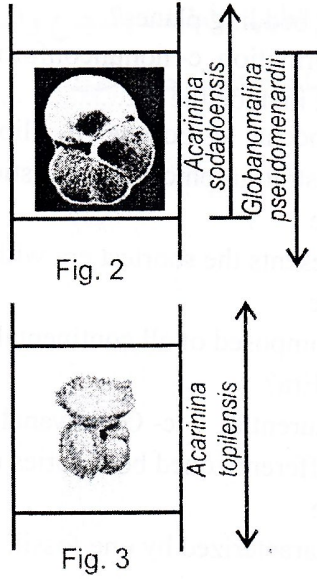
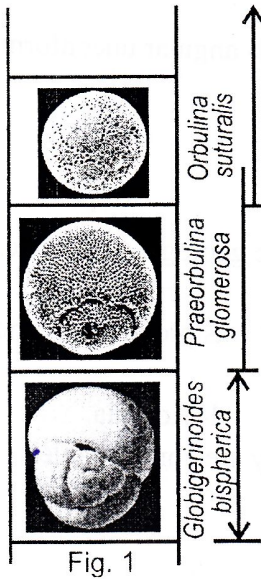
2017/2018م

الدرجة: 50 درجة

الامتحان يتكون من ثلاث صفحات

السؤال الأول: (15 Marks)

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



السؤال الثاني: (15 Marks)

Choose the correct answer:

- 1- What was Pangaea?
a- type of fossils
b- a large, single landmass
c- the original name for North America
d- a geologic era
- 2- What types of animals dominate the Cenozoic Era?
a- reptiles
b- trilobites
c- dinosaurs
d- mammals
- 3- The longest section of Earth's history was.....
a- Precambrian
b- Paleozoic
c- Neogene
d- Mesozoic
- 4- The oxygen in Earth's atmosphere come from
a- cyanobacteria
b- rocks
c- rocks
d- plants

- 5- During the Azoic Eon of Earth's history,
 - a- there was no life
 - b- angiosperms evolved
 - c- there was life everywhere
 - d- vertebrates evolved
- 6- Biostratigraphy refers to
 - a- a relative dating method
 - b- a method used to compare fossils found at different sites
 - c- a method used to determine similarity in time levels
 - d- all of these
- 7- Mass extinction attributes to
 - a- an asteroid or comet impact
 - b- wide-spread volcanic activities
 - c- sea level changes
 - d- all of these
- 8- Land plants appeared during the Period.
 - a- Cretaceous
 - b- Silurian
 - c- Carboniferous
 - d- Neogene
- 9- What is the name for an erosion surface that separates two sets of sedimentary layers with non-parallel bedding planes?
 - a- cross-bedding
 - b- formation
 - c- nonconformity
 - d- angular unconformity
- 10- The Paleogene does not include the
 - a- Paleocene
 - b- Oligocene
 - c- Eocene
 - d- Pliocene
- 11- All rock strata have biostratigraphic characteristics.
 - a- True
 - b- False
- 12- The Cenozoic Era represents the shortest era within the geologic time scale.
 - a- True
 - b- False
- 13- What supercontinent composed of all continental crust was produced by the end of the Proterozoic Era?
 - a- Pangaea
 - b- Laurentia
 - c- Gondwanaland
 - d- Rodinia
- 14- The biostratigraphic different zoned boundaries mostly are conformable.
 - a- True
 - b- False
- 15- Assemblage zone is characterized by one fossil.
 - a- True
 - b- False

(10 Marks) السؤال الثالث

- 1- Discuss two only of the following: (6 Marks)
Mediterranean salinity crisis – Lazarus taxa – formation of the Red Sea
- 2- Write the biostratigraphic events for two only of the following chronostratigraphic boundaries: (4 Marks)
 - a- Cenomanian/Turonian
 - b- Cretaceous/Paleogene
 - c- Paleogene/Neogene

السؤال الرابع (10 Marks)

- 1- Compare between two only of the following: (5 Marks)
 - a- Caledonian and Laramadian orogenies.
 - b- Ordovician and Silurian facies.
 - c- Climate in Archean and Proterozoic times.
- 2- Write the derivation of five only of the following geochronologic units: (5 Marks)
 - a- Permian Period b- Holocene Epoch c- Triassic Period
 - d- Cretaceous Period e- Eocene Epoch f- Devonian Period

تمت الأسئلة مع اطيب الأمنيات بالنجاح والتفوق

ا.د/ ناجح عبدالرحمن عبيدالله

بسم الله الرحمن الرحيم

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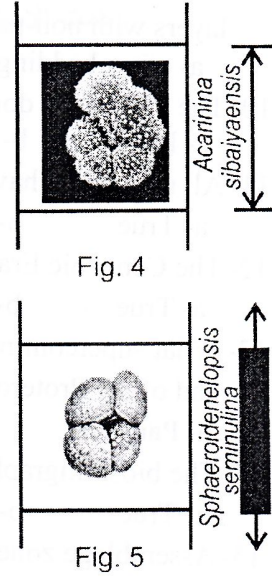
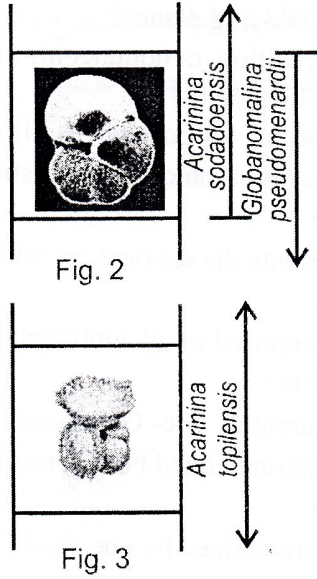
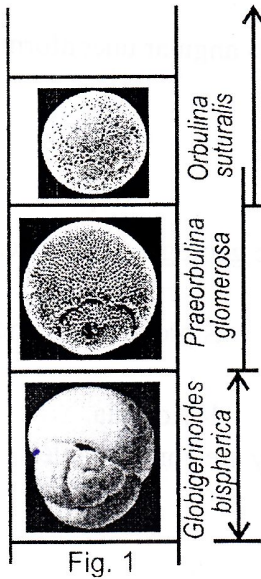
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ا.د/ ناجح عبدالرحمن عبيدالله



Final exam

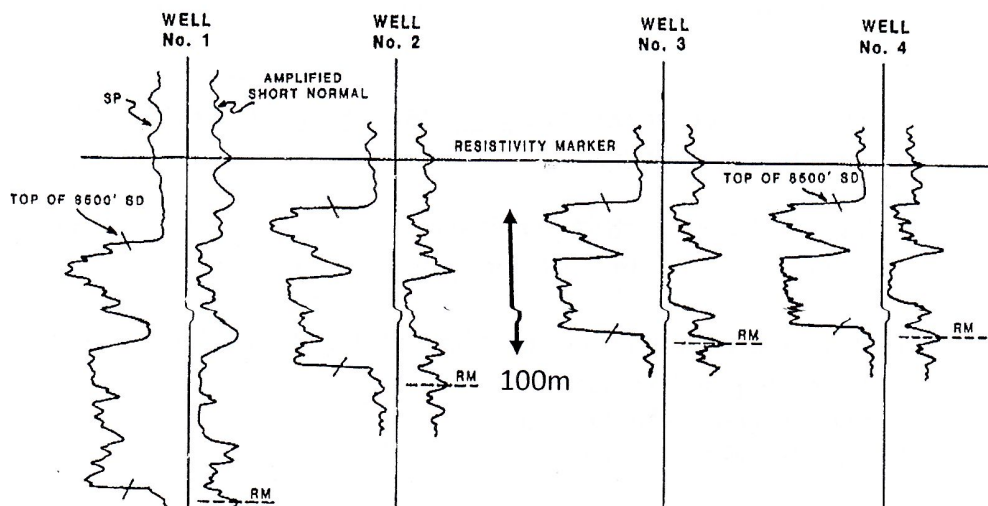
Subject: Subsurface mapping (GP308), Petroleum geology students
Total 50 marks

Transfer the questions to your notebook and answer the following:-

I- Complete the missing on only five of the following:-

(15 Marks, 3 marks each)

- 1- From the figure below, if the drilling of wells 1, 2, 3 and 4 was vertical and the SD (sandstone) bed was horizontal in location of well 4 and dipping by angles 20, 40 and 60 in locations of wells 3, 2 and 1 respectively.
The vertical scale is given on the figure



- 2- Isopach map, lithofacies map, ratio map and percentage map are generally used for studying sedimentation and paleo-environment. **Discussion these application with illustration:-**
 - a-
 - b-
 - c-
 - d-
- 3- Subsurface fence or panel diagram are classified based on four roles. **Mentioned these roles and its subdivisions:-**
 - a- b-
 - c- d-
- 4- When structure contouring of horizontal bed faulted by normal fault with throw equal to, less than or more than the bed thickness, three contour

distribution characterizing each case can be obtained. **Discuss the three cases with illustration:-**

- Case 1
- Case 2
- Case 3

5- When correlating layers recorded from electric logs of during vertical drilling with those observed from directional drilling the main guidelines that will take into account are:- **with illustration.**

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

6- When structure contouring of horizontal bed faulted by reverse fault with throw equal to, less than or more than the bed thickness, three contour distribution characterizing each case can be obtained. **Discuss the three cases with illustration:-**

- Case 1
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II- **Choose the correct answer and comment on your choice with illustration on only ten of the following :-** (20 Marks, 2 mark each)

- 1- In log correlation for stratigraphic sections the correlation must start:-
 - a- From top to bottom
 - b- From bottom to top
 - c- From bedding surfaces
- 2- Drilling horizontal layers by directional drilling LMT is increasing with:-
 - a- Decreasing of deviation angle
 - b- Increasing of deviation angle
 - c- Increasing of dip angle
- 3- Increasing of layers thickness in the upthrow side of the fault plane in compared with in the downthrown side indicating to:-
 - a- Normal growth fault
 - b- Reverse growth fault
 - c- Wrench growth fault
- 4- Repetition of layers during vertical drilling with decreasing toward a definite direction in the repetition interval indicates to:-
 - a- Reverse fault
 - b- normal fault
 - c- recumbent fold
- 5- Nosing in the structure contour map with centre- ward decreasing of contour values and unequal contour distance in both sides denoting to:
 - a- Asymmetric plunging syncline
 - b- Asymmetrical plunging anticline
 - c- Symmetrical double plunging syncline

- 6- Intersection and irregularity in contours of ratio, percentage, isolith and isopach maps of time rock unit indicate to:-
 - a- Regular sedimentation b- Erosion c- Migration of strand line
- 7- Double nosing in the structure contour map with centre- ward increasing of contour values and similar contour distance in both sides denoting to:
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- 8- Migration of maximum isopach contours of successive subsurface layers denoting to:-
 - a- Post sedimentary uplift
 - b- Syn-sedimentary uplift
 - c- Post sedimentary subsidence
- 9- Vertical variability maps are generally explain the variation in the sedimentary sequences of:
 - a- Shelf area b- Intra-cratonic area c- Cratonic area
- 10- Wrench Faults of horizontal displacement and vertical fault plane can be recognized on structure contour map by:
 - a- Nosing of contour lines
 - a- Pending of contour lines
 - d- Repetition of contour lines
- 11- Intra-cratonic area in isopach map is characterized by:
 - a- Abrupt increasing in the contour distance toward zero contour
 - b- Irregular and random distribution of contour lines
 - c- Regular and oval shape of contour lines

III- Show how you can detect five only of the following with illustration :-
(15 marks, 3 marks each)

- 1- Salt dome morphology from isopach maps
- 2- Erosion surface from isopach maps
- 3- Asymmetrical nonplunging anticline from structure contour map
- 4- The hydrocarbon reserve from both structure contour map and isopach map
- 5- Boundaries between pure shale, shaly sand, sandy shale and sandstone from facies maps
- 6- Reverse fault of downthrown more than thickness of the faulted dipping

===== Best wishes =====



Final exam

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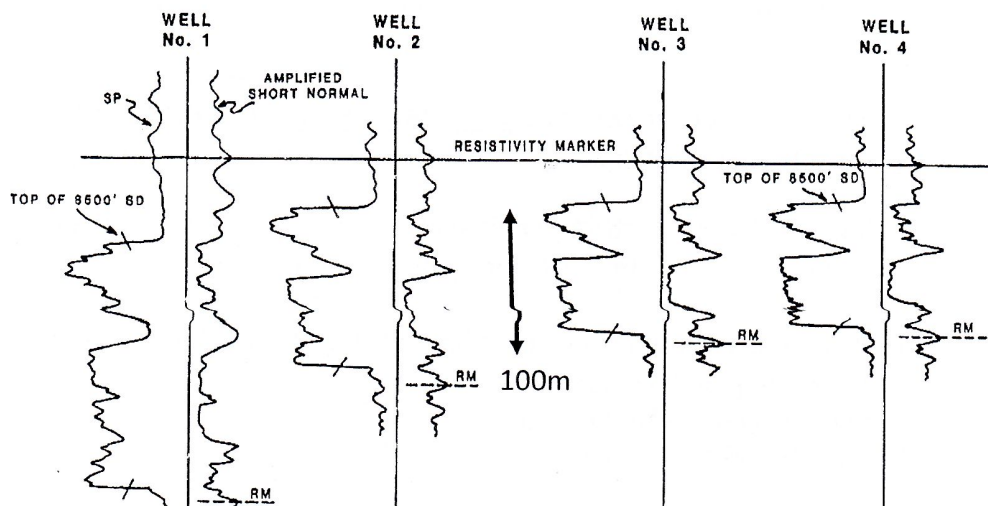
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First Semester, Third Level Final Examination

Time: 2hours	Total marks: 50	Gravitational and Magnetic Exploration (G351)	January, 2018
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Second Part: Magnetic Exploration (25 marks)

Answer the following first and second questions:

- 1.** Fill in the blankets. (10 marks)
- Magnetic fields are not; their directions vary with azimuth.
 - When the rock is in a magnetic field, the alignment of magnetic moments by the field produces.....
 - The direction of the induced magnetization is parallel to.....in the rock.
 - The total magnetization of a rock is the sum of the andmagnetizations.
 - The *Königsberger ratio* (Q_n) is defined as the ratio of the
 - Magnetic investigations of continental crustal rocks forcan often be interpreted as cases with $Q_n \ll 1$.
 - Total field magnetic anomaly maps record the components of local anomalies in the direction of the
 - A simple compact magnetic body produces a magnetic anomaly that has bothparts or lobes.
 - The magnetic permeability is a
 - Diamagnetic susceptibility is, whereas the Paramagnetic susceptibility is
 - The susceptibility of an antiferromagnetic crystal is, and remanent magnetization is not possible. A common example of an antiferromagnetic mineral is
 - Itabiritic rocks tend to produce the anomalies, followed bybodies, whereas felsic areas of granitic/gneissic terrain often show a plethora of low amplitude anomalies.
 - Dykes and sills of a mafic composition often have a strong, remanent magnetization due to
 - The NRM component acquired during rock formation is referred to as However, components can be acquired subsequent to rock formation.
 - The flux-gate magnetometer is a, because it measures the strength of the magnetic field in a particular direction, namely along the axis of the sensor.
 - Any anomaly with a "true" wavelength less than thewill not be identified, and will have the effect of distorting the good data that possess longer wavelengths.
 - is here defined as a differential magnetometer where the spacing between sensors is fixed and small with respect to the distance to sources whose gradients are to be measured.
 - Gradients can be used very quantitatively or for their vector properties (gradient of the scalar) in ascertaining,, and
 - The the value of (dT/dr) that the gradiometer can measure, thesensitive is the gradiometer.
 - The origins of geomagnetic secular variation can be crudely subdivided into two contributions with overlapping periodicities: (1) and (2)

2. Put (True) or (False) at each point, and correct the (false) if present. (10 marks)

- The *magnetic poles* of the Earth are defined as the locations where the Declination of the magnetic field is ± 90 (i.e., where the field is vertically upward or downward).

Please Turn Over →

- 2) The geocentric axial magnetic dipole describes a magnetic dipole at the center of the Earth and aligned with the Earth's rotation axis (i.e. geographic north-south).
- 3) Magnitude of IGRF will fall be between 20000 and 70000 nT everywhere on earth. IGRF removal involves the subtraction of about 50% of the measured value.
- 4) The remanent magnetization (M_r) of the rock (i.e. spontaneous magnetization) is not related to the present day geomagnetic field, but is related to the Earth's magnetic field in the geological past.
- 5) The susceptibility of most rocks therefore reflects the abundance of 'Hematite'.
- 6) The susceptibility is a measure of the ease with which the material can be magnetized and can be thought of as the absolute ability.
- 7) The oceanic basalts carry a strong chemical remanent magnetization and often have Q_n values of 10 or smaller.
- 8) A gradiometer measures the gradient at the midpoint of the source-sensor distance.
- 9) In gradiometer surveys, magnetic time variations including the effects of magnetic storms are effectively removed.
- 10) The vertical distance between the magnetic source and the magnetometer sensor is called Nyquist wavelength.
- 11) Shock anhysteretic remanent magnetism (VRM) is a remanent magnetization that is gradually acquired during exposure to weak magnetic fields.
- 12) Micropulsation time is the time required for the remanence to decay.
- 13) All magnetic materials show a diamagnetic reaction in an external magnetic field H .
- 14) In gradiometer surveys, the residual magnetic gradient is removed to better define the shallower anomalies.
- 15) In low magnetic latitudes, it can be shown that the dipolar nature of compact magnetic sources leads to anomaly patterns that are more extended in an N-S direction and therefore better defined by E-W survey-lines
- 16) Three main classes of magnetic behavior can be distinguished on the basis of magnetic susceptibility: *diamagnetism*, *paramagnetism* and *ferromagnetism*.
- 17) The narrower anomalies for a given body, gradient measurements require a closer sample interval to satisfy the requirements of adequate sampling - about one-third of the sensor spacing.
- 18) the effect of non-hydrostatic stress in the presence of a magnetic field is to produce a post depositional remanent magnetization (PRM)
- 19) The ratio of depositional to postdepositional alignment depends upon Grain size, Rate of deposition, Bioturbation.
- 20) Analytic signal is calculated only from the vertical gradients. Analytic signal enhances the edges of magnetized bodies (e.g. faults, structural contacts).

Answer only ONE from the following questions:

(5 marks)

3. Compare in detail between the five basic temporal variations in a table format

4. Illustrate in detail the core idea of the proton-precession magnetometer with schematic representation.

End of questions

GOOD LUCK

Dr. Mostafa Thabet Mohammed



Subject: Diagenesis and Marine Geology (323 G)

Part One: Diagenesis (25 marks)

Answer the following questions:

(9 marks)

1. Mention the important diagenetic processes acting in the mesogenetic and telogenetic stages. (6 Marks)
2. Silica cementation is one of the most diagenetic features affecting Nubia Sandstone of Egypt, explain the possible sources of such phenomenon (3Marks)
3. Answer only ONE question of the following illustrating your answer with drawings: (4 Marks)
 - A- Smectite is a sensitive clay mineral to burial diagenesis, write in its importance as a geothermometer.
 - B- Diagenesis-metamorphism transition was a matter of debate, write what are the limits used?
4. Dissolution of grains at point contacts are well documented in sediments due to burial diagenesis, explain it illustrating your answer with drawings. (4 Marks)
5. True OR False, correct the false ones: (8 Marks)
 1. Mineral composition is an important factor controlling the diagenesis of sandstone reservoirs.
 2. Microbial activities are not important diagenetic processes in carbonates and evaporites.
 3. Petroleum generation is related mainly to metagenesis stage.
 4. Karstification is related to mesogenetic regime.
 5. Dolomitization is a destructive diagenesis to form petroleum reservoir rocks.
 6. Diagenetic processes acting in limestones and clay minerals are the same.
 7. At higher temperatures and greater depths kaolinite is replaced by illite and chlorite.
 8. Meteoric water diagenesis is characterized by high-Mg calcite.

Part Two: Marine Geology (25 marks)

Answer only Three questions out of the following

Question no. (1) choose the correct answer (8.5 marks)

- **Which of the following does NOT occur when two continental plates collide (2 marks)?**
A. The crust becomes folded and deformed
B. The crust floating on the Earth's mantle develops a deep root
C. One plate sinks below the other
D. Uplift occurs and results in the formation of Mountain Belts
- **What is the name for the Supercontinent to which all of the land mass on Earth was joined approximately 600 million years ago (1.5 marks)?**
A. Gaia B. Pangaea C. Laurasia D. Gondwanaland
- **Atolls may be described as.....(2 marks)**
A. Coral reefs paralleling a nearby coastline B. Coral reefs surrounding a lagoon
C. A flat-topped submerged seamount D. Coral reefs separated from the mainland by a shallow lagoon
E. A small reef growth in a lagoon
- **Directly seaward of the continental shelf is a more steeply sloping region known as.....(1.5 marks)**
A. Continental shelf B. Submarine canyon
C. Continental slope D. Ocean basin E. Continental rise
- **Marine sediments deposited in water depths greater than about 12,000 feet usually lack.....(1.5 marks)**
A. Carbonate shells B. Silica-rich shells
C. Fine grained material transported by the wind
D. All of these E. None of these

Question No. (2): Why (give reasonable interpretations) (8.5 marks)

1. Most of the lithogenous sediment composed of quartz (2 marks).
2. Solution of carbonate sediments in deeper water (1.5 marks).
3. Rise of the ocean floor at the base of the continental slope (1.5 marks).
4. It seems impossible that rivers could have cut submarine canyons (1.5 marks).
5. Marine sediments are thickest on the continental margins (2 marks).

Question No. (3): True or False (8.5 marks)

1. On average, continental rocks are denser than the rocks of the oceanic crust (2 marks).
2. The tops of most submarine canyons were exposed valleys and rivers during the last Ice Age (1.5 marks).
3. The ocean floor basalts are magnetized (1.5 marks).
4. The graded bedding found in a turbidite usually shows mud on the bottom of the layer followed by silt in the middle and then sand at the top of the layer (2 marks).
5. Hydrothermal vents are also known as black smokers (1.5 marks).

Question No. (4) :Write in detail on the following items (8.5 marks)

1. What observations did Wegener use to support the hypothesis of continental drift (2 marks).
2. What is a turbidite. How and where does it form (1.5 marks).
3. Discuss the concept of "Carbonate Compensation Depth" (2 marks).
4. Describe the process of subduction in your own words. What causes subduction to happen (1.5 marks).
5. What are the differences between shallow and deep-water waves (1.5 marks).

Good luck

Abdalla M. El Ayyat

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

January 13, 2018

Time: 2 hours

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

A) Write on (Choose THREE questions Only) (15 mark)

- 1- Problems interpreting refraction data (by drawing)
- 2- Limitations in the interpretation of Electric sounding data
- 3- Applications of resistivity surveys in ground water studies
- 4- Several common geologic situations which can produce confusing travel-time curves in seismic refraction method !Interpret that by drawing

B) Complete the missing answer (10 marks)

- 1- From problems refraction seismic method, some layers have a lower velocity than the one above due to occurrence,.....For example..... and we can know that by,.....
- 2- Anisotropic coefficient (λ) defined as.....while suppression and equivalence
- 3- Reflection of energy from a small sphere produces
- 4- An unmigrated point source produces
- 5- Migration collapses the hyperbola back into
- 6- Seismic Reflection Caveats are 1).....,2).....and 3).....
- 7- Discontinuous layers produce diffracted waves due to.....
- 8- The best methods can be used to find the water table, water quality and abandoned mine shafts are respectively.....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 saltwater intrusion
2. Give a brief summary of what you know about the GRACE mission and discuss one of its applications on environmental problems

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

1. Explain the magnetic gradiometer survey method with their advantages and limitations in near surface environmental applications
2. What is the meaning of microgravity and its applications
3. Write on the factors that control the precise and bias in gravity method
4. What are the optimal detectable features unique for magnetic method and why baked clays are magnetic?
5. What are the different corrections applied to gravity data and main reason for applying these corrections
6. Write on the general guidelines for qualitative interpretation of magnetic data
7. How gravity acceleration is measured on land and airborne
8. How can somebody deal with the source of noise in magnetic field survey and what are the pitfalls in magnetic data interpretation?
9. What questions you and provider should ask for conducting a magnetic survey to investigate an environmental problem
10. Discuss the advantages of integrating gravity and magnetic survey in studying environmental problems
11. What are the advantages and limitations of magnetic survey?

Good Luck.....

Igneous Petrology (333 G.) 3rd year

Answer the following questions illustrating your answer with diagrams:

1. Write what you know about TWO only of the following:
 - a) Lava flows and lens-shaped intrusions (6¼ marks)
 - b) Importance and effects of fugitive constituents of magma..... (6¼ marks)
 - c) Crystallization of eutectic system (6¼ marks)
2. Comment on TWO only of the following:
 - a) Assimilation of basaltic magma to aluminous sedimentary rocks..... (6¼ marks)
 - b) Petrographic provinces of rock associations (6¼ marks)
 - c) Late and post magmatic processes (6¼ marks)
3. Give an account on the classification of pyroclastic volcanic rocks.....(12¼ marks)
4. Write on the classification of ultramafic igneous rocks(12¼ marks)

Dr. Mohamed E. Habib

Dr. Osman M. EL- *Nady*



First Semester, Third Level Final Examination

Time: 2hours	Total marks: 50	Seismic Exploration and Earthquake Seismology (G350)	January, 2018
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First Part: Seismic Exploration (25 marks)

Answer the following questions:

1- Mark the following statements with False (X) or correct (✓) and correct the false statements: (10 marks)

- 1) () The detected depth in the refraction method is directly proportional to length of the measured profile.
- 2) () Shear wave is the fastest kind of the seismic waves.
- 3) () Seismic reflection occurs whenever there is a contrast in acoustic impedance between the rock layers ($\rho_1 v_1 \neq \rho_2 v_2$).
- 4) () Intercept time is the actual time for refracted waves recorded near the shot point.
- 5) () In anisotropic medium velocity of the seismic waves is varied only in the vertical direction.
- 6) () Reflected waves are usually recorded as first peak in the seismograms.
- 7) () The time-distance curve for the reflected waves from dipping interface is a hyperbola whose axis of symmetry is the time axis
- 8) () Seismic prospecting depends mainly on the change of elastic properties of the medium.
- 9) () Shear seismic waves travel through solids, liquids and gasses.
- 10) () Head waves can be generated and detected near the shot point.

Answer ONLY TWO of the following:

(15 marks, 7.5 marks for each)

Write in details on the following

- a) Find a relation between the raypath parameter and the raypath curvature.
- b) Prove that the refraction time distance curve represents the tangent of the reflection time distance curve at the critical distance.
- c) Types of the secondary waves which generated at the interface between layers in different cases.
- d) Find the equation for the time distance curve for single horizontal reflecting interface and estimate its depth.

Second Part: Earthquake Seismology (25 marks)

Answer the following first, second and third questions:

1. Fill in the blankets.

(6 marks)

- 1) Generating head waves or presence ofcaused by incidence with smallest angle or critical angle.
 - 2) The core shadow zone is caused by a
 - 3) is the product of shear wave velocity of a layer divided by four times the thickness of this layer.
 - 4) Predominant frequency is the frequency that corresponds to
 - 5) Seismic beach balls or focal mechanisms are graphical summary of the
 - 6) First P-wave motions are either, or arrive
 - 7) is the ratio between largest measurable amplitude to the smallest measurable amplitude.
 - 8) The orthogonal motion components can be measured as
 - 9) is a decrease in amplitude and change in frequency content of the seismic waves with distance, because of geometric spreading, energy absorption, and scattering.
 - 10) Liquefaction is a
 - 11) is an acceleration time history that is not recorded during an actual earthquake but is developed, using analytical and theoretical methods, to be representative of an acceleration time history that could be recorded during an earthquake.
 - 12) The edges of basins can effectively trap incoming seismic waves, thereby
-

2. Choose the correct answer from (A), (B), or (C).

(6 marks)

- 1) is a wave starting as S, transmitted into the outer core, once reflected inside the outer core boundary, and emerging as S.

A) SKKSB) SKiKSC)SKJKS
- 2) The origin of Love wave is

A) Primary waveB) Shear waveC) surface wave

..... occurs when the natural frequency of the layer match the natural frequency of any engineering structure embedded on it.

- A) resonance B) amplification C) liquefaction
- 4) Fourier analyses consist of real part and image part. The real part and image part are divided by the.....
A) folding frequency B) predominant frequency C) cut-off frequency
- 5) is the wave frequency multiplied by 2π , and used to create harmonic sine or cosine waves.
A) angular frequency B) cut-off frequency C) Wave frequency
- 6) Snell's law for spherical layers uses incidence angles and, whereas Snell's law for flat layers uses incidence and refraction angles only.
A) layer S-wave velocity B) layer P-wave velocity C) layer thicknesses
- 7) Upward polarity of P-waves ground motion indicates an in the source region.
A) compression B) contraction C) expansion
- 8) sequences can provide valuable hints about fault plane orientation at depth.
A) Beforeshocks B) aftershocks C) mainshocks
- 9) The is a plane perpendicular to the line describing the direction of slip in the earthquake
A) auxiliary plane B) fault plane C) footwall
- 10) Upward P-wave polarities at stations are experiencing pushing you the source of the earthquake
A) away from B) toward C) normal to
- 11) Resonance effects are caused by a in the medium properties, which leads to trapped waves with multiple reflections within the layer.
A) homogeneity B) heterogeneity C) discontinuity
- 12) is an increasing modification of the input bedrock ground motion by the overlying unconsolidated materials.
A) Attenuation B) amplification C) resonance
-
-

3. Put (True) or (False) at each point, and correct the (false) if present.

(6 marks)

- 1) The natural frequency is the reciprocal of the period.
 - 2) A P -wave reflected at the outer surface (i.e. Crust) as P -wave is denoted by PcP .
 - 3) The main factor controlling the acoustic impedance changes is the frequency of the incoming waves.
 - 4) The folding frequency equals half of the cut-off frequency.
 - 5) The minimum and the maximum cut-off frequencies are controlling the Low-pass filter.
 - 6) Only SH- waves produce Love waves when they reach the surface.
 - 7) An S -wave reflected at the outer surface (i.e. Crust) as S -wave is denoted by SKS .
 - 8) The wave frequency of the P -wave is the key in solving the focal mechanism analyses.
 - 9) Hanging wall is the portion of the crust that lies above the fault or fault rupture plane.
 - 10) Fourier analyses consist of real part and image part. The real part and image part are divided by the predominant frequency.
 - 11) Accelerogram is a record showing velocity and distance as a function of time.
 - 12) The seismic station must have high impedance change with the underlying soil or hard bedrock.
-

Answer ONLY ONE from the following questions:

(7 marks)

- 4.** Explain the principle of the Feedback circuit of a force-balance accelerometer (FBA).
- 5.** How the first motion of P -wave is used in fault plane solution?

End of questions

GOOD LUCK

Prof. Assem El-Haddad

Dr. Mostafa Thabet

*Assiut University
Faculty of Science
Geology Department*



*Time: 2 hours
January 2018
First Semester Exam.*

Subject: Sedimentary Environments and Sedimentary Basins (335 G)

Answer the following questions:

(50 Marks)

1. Answer only ONE question of the following: (6 Marks)
 - A- Rift valley is formed due to successive stages, explain these illustrating your answer with drawings.
 - B- Many sedimentary environments are recognized worldwide, write in brief on the main classification of these and give examples of modern and ancient analogues from Egypt.
2. Define active and inactive sedimentary basins. (2 Marks)
3. Compare between syn-depositional and pre-depositional sedimentary basins, illustrating your answer with drawings. (4 Marks)
4. Abu Gharadiq basin is one of the most prominent productive sedimentary basins in Egypt, mention its location, thickness of its sediments, and age of the source rocks. (3 Marks)
5. Biological parameter is very important in the interpretation of ancient sedimentary environments, explain it. (4 Marks)
6. Recognition of ancient depositional sedimentary environments is important for geologists, mention in brief the informations reached. (3 Marks)
7. Define the following: (4 Marks)

Alluvial fan, Prodelta, Pelagic sediments, Symmetrical sedimentary cycles
8. Not all the marine sediments derived from the sedimentary basin itself, mention the most important external sources. (4 Marks)

9. Answer only ONE question of the following: (6 Marks)

A- The development of sedimentary basin fills is controlled by many factors, write on these.

B- Cross- bedding is one of the most reliable parameters needed for the interpretation of ancient sedimentary environments, write on the types characterizing the aeolian, fluvial and tide systems.

10. Which of the following is true and which is false, correct the false ones: (10 Marks)

- () Coarsening upward is a common feature characterizing the ancient fluvial sediments.
- () Eocene limestone in Egypt had accumulated mainly in neritic environment.
- () The Nubia Sandstone in Egypt had deposited mainly in Deltaic environment.
- () Trough cross – bedding is the main primary sedimentary structure characterizing the tidal flat sediments.
- () Aeolian sediments are mainly poorly sorted.
- () Grain textures are not important in sedimentary environment interpretation.
- () Deltaic sediments are important for hydrocarbon exploration.
- () Sedimentary cycle is characterized either by vertical variation in primary sedimentary structures and/or the change in lithology.
- () Deep ocean basins and intermountain basins have the same size
- () Autocycles are cyclic sediments that are created by processes with the basins.

11. Industrial materials were laid down in Egypt under different environmental settings, illustrate the environment of the following:

(4 Marks)

- a) Kaolin
- b) Hammamat conglomerates
- c) Evaporites
- d) Oil Shale

Ezzat A. Ahmed

Good luck

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- petromict conglomerate
b- Quartz arenite
(5 Marks)
2. What are the heavy minerals and light minerals? Why the heavy minerals are important?
(5 Marks)
3. a- What is the difference between mudstone and shale?
b- Define the term diagenesis? What is cementation? Mention the types of cement in the siliciclastic rocks.
(5 Marks)
4. a- What are the common minerals that constitute the carbonate rocks?
b. Describe briefly the texture and composition of:
Oolite
Biomicrite
(5 Marks)
5. What are evaporites? Mention briefly the mineral composition of the evaporite rocks?
(5 Marks)
6. a. What are the phosphorite deposits? Mention briefly their mineralogical composition.
b. Why the phosphorite deposits are important?
(5 Marks)

أ.د. محمد احمد سليمان

Part Two: Sedimentary environments and facies

Answer only Three (3) questions out of the following

السؤال الاول (اجباري) استخدم الجداول لتوضيح الفروق

1. Tabulate the differences between the following items (8.5 marks):

- A. Point-bar deposits and flood-plain deposits (2 marks).
- B. Post-depositional sedimentary structures and pre-depositional sedimentary structures (2.5 marks).
- C. Active channel deposits and abandoned channel deposits of meandering rivers (2 marks).
- D. Calcareous ooze and siliceous ooze of marine origin (2 marks).

السؤال الثاني (اجباري) صحح الجمل الخطأ اذا وجدت

٢. True or false. Correct the false statements (8.5 marks).

- A. The lateral migration of a meandering channel erodes the inner convex bank, scours the river bed, and deposits sediment on the outer concave bank as point bar deposits consisting primarily of massive sandstones (1 mark).
- B. Sedimentary environment is a geographic location under which sediment can accumulate and characterized by a particular combination of geological processes and environmental conditions (1 mark).
- C. Braided channels are normally associated with low-gradient slopes, coarse, often gravelly, sediment, and steady discharge. Meandering channels are normally associated with fine-grained sediment, steep gradient and erratic discharge (1.5 mark).
- D. Environments of equilibrium are surfaces of the earth, only under the sea, which for long periods of time are sites of erosion and deposition (1 mark).
- E. The geometry is the two-dimensional shape of a sedimentary environment, which is a function of syn-depositional topography, the geomorphology of the depositional environment and its post-depositional history (1 mark).
- F. By reconstructing depositional environments geologists are able to reconstruct the climates of the past, life forms of the past and geography of the past-where the mountains, basins, large rivers and bays of the ocean were (1 mark).
- G. Thick sequences of red-colored interbedded conglomerates, sands, and shales devoid of marine fossils and showing fining upward are generally believed to be deltaic in origin (1 mark).
- H. Calcareous oozes are well-developed in Polar Regions. This is due to the low temperature of the bottom water which causes the accumulation of aragonite and calcite at faster rates than in the more equable equatorial oceans (1 mark).

السؤال الثالث (اختياري) وضع اجابتك بالرسم كلما امكن

٣. Discuss in detail the following items (8.5 marks):

- A. Different types of modern marine sediments (2.5 marks).
- B. Three basic types of delta (2 marks).

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- C. The vertical sedimentary sequence of meandering rivers (2 marks).
D. Paleocurrent patterns as a diagnostic feature for depositional environments (2 marks).

السؤال الرابع (اختياري) وضع اجابتك بالرسم كلما امكن

4. Discuss in detail the following items (8.5 marks):

- A. Sedimentary processes in a delta model (2.5 marks).
B. Fluvial processes and modern alluvium (2 marks).
C. Carbonate compensation depth (2 marks).
D. Sedimentary structures as a tool for environmental interpretation (2.5 marks).

Good Luck

Abdalla M. El Ayyat



Question (1): 15 points

Write short note on the following:

- a) Relaxation in NMR.
- b) Larmor Frequency.
- c) Electric Quadrupole splitting.
- d) Conditions for Mössbauer spectra.
- e) Magnetic Imaging Resonance (MRI).

Question (2): 5 Points

Draw Energy level diagram illustrating magnetic splitting for $3/2$ and $1/2$ transitions in ^{57}Fe .

Question (3): 10 Points

Deduce an expression for spin-orbit interaction energy? Then apply this formula to calculate the fine structure of sodium atoms (3p state).

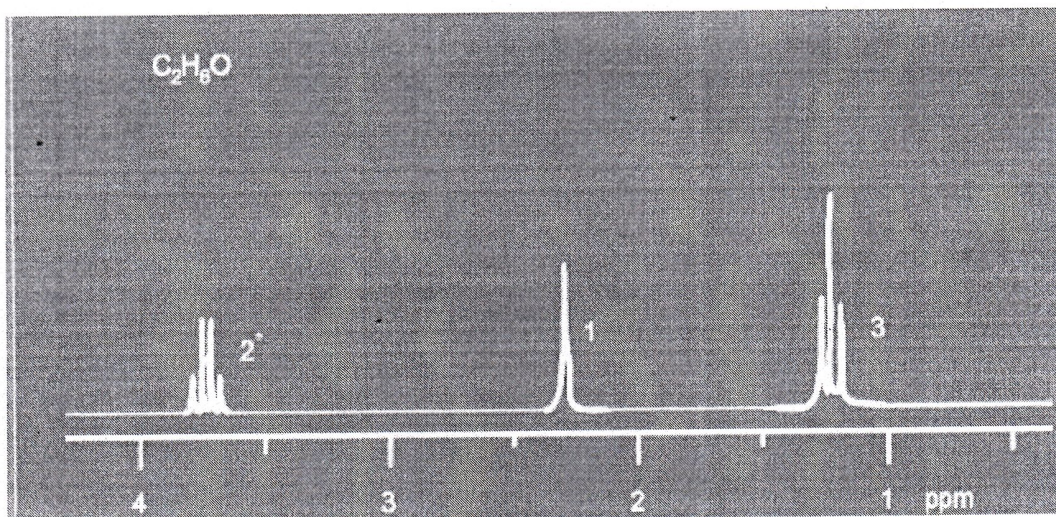
Question (4): 10 Points

Discuss in details Jahn-Teller effect? Does the spin system (high spin v. low spin) of a molecule play a role in Jahn-Teller Effects? Use diagrams to enhance your answer.

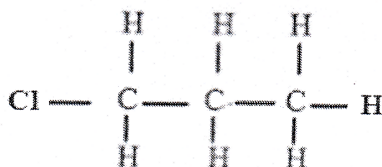
Answer only one of the following questions

Question (4): 10 Points

- a) Provide a structure of a compound having a molecular formula $\text{C}_2\text{H}_6\text{O}$. Show your work and assign all relevant peaks in the figure below.



- b) Predict NMR spectra for the following molecular formula C_3H_7Cl . Show your work and assign all relevant peaks in the figure below



Best Wishes

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- petromict conglomerate
b- Quartz arenite

(5 Marks)
2. What are the heavy minerals and light minerals? Why the heavy minerals are important?

(5 Marks)
3. a- What is the difference between mudstone and shale?
b- Define the term diagenesis? What is cementation? Mention the types of cement in the siliciclastic rocks.

(5 Marks)
4. a- What are the common minerals that constitute the carbonate rocks?
b. Describe briefly the texture and composition of:
Oosparite
Biomicroite

(5 Marks)
5. What are evaporites? Mention briefly the mineral composition of the evaporite rocks?

(5 Marks)
6. a. What are the phosphorite deposits? Mention briefly their mineralogical composition.
b. Why the phosphorite deposits are important?

(5 Marks)

أ.د. محمد احمد سليمان

Part Two: Sedimentary environments and facies

Answer only Three (3) questions out of the following

السؤال الاول (اجبارى) استخدم الجداول لتوضيح الفروق

1. Tabulate the differences between the following items (8.5 marks):

- A. Point-bar deposits and flood-plain deposits (2 marks).
- B. Post-depositional sedimentary structures and pre-depositional sedimentary structures (2.5 marks).
- C. Active channel deposits and abandoned channel deposits of meandering rivers (2 marks).
- D. Calcareous ooze and siliceous ooze of marine origin (2 marks).

السؤال الثانى (اجبارى) صحح الجمل الخطأ اذا وجدت

٢. True or false. Correct the false statements (8.5 marks).

- A. The lateral migration of a meandering channel erodes the inner convex bank, scours the river bed, and deposits sediment on the outer concave bank as point bar deposits consisting primarily of massive sandstones (1 mark).
- B. Sedimentary environment is a geographic location under which sediment can accumulate and characterized by a particular combination of geological processes and environmental conditions (1 mark).
- C. Braided channels are normally associated with low-gradient slopes, coarse, often gravelly, sediment, and steady discharge. Meandering channels are normally associated with fine-grained sediment, steep gradient and erratic discharge (1.5 mark).
- D. Environments of equilibrium are surfaces of the earth, only under the sea, which for long periods of time are sites of erosion and deposition (1 mark).
- E. The geometry is the two-dimensional shape of a sedimentary environment, which is a function of syn-depositional topography, the geomorphology of the depositional environment and its post-depositional history (1 mark).
- F. By reconstructing depositional environments geologists are able to reconstruct the climates of the past, life forms of the past and geography of the past-where the mountains, basins, large rivers and bays of the ocean were (1 mark).
- G. Thick sequences of red-colored interbedded conglomerates, sands, and shales devoid of marine fossils and showing fining upward are generally believed to be deltaic in origin (1 mark).
- H. Calcareous oozes are well-developed in Polar Regions. This is due to the low temperature of the bottom water which causes the accumulation of aragonite and calcite at faster rates than in the more equable equatorial oceans (1 mark).

السؤال الثالث (اختيارى) وضح اجابتك بالرسم كلما امكن

٣. Discuss in detail the following items (8.5 marks):

- A. Different types of modern marine sediments (2.5 marks).
- B. Three basic types of delta (2 marks).

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- C. The vertical sedimentary sequence of meandering rivers (2 marks).
- D. Paleocurrent patterns as a diagnostic feature for depositional environments (2 marks).

السؤال الرابع (اختياري) وضح اجابتك بالرسم كلما امكن

4. Discuss in detail the following items (8.5 marks):

- A. Sedimentary processes in a delta model (2.5 marks).
- B. Fluvial processes and modern alluvium (2 marks).
- C. Carbonate compensation depth (2 marks).
- D. Sedimentary structures as a tool for environmental interpretation (2.5 marks).

Good Luck

Abdalla M. El Ayyat



Assiut University
Faculty of Science
final exam(2017-2018)

Technical Reports Writing
Level 3 industrial chem. program
Time: 2 hrs.

Monday, 09 Jan. 2018

The exam 5 questions in 2 pages (50 marks)

Answer the following questions supporting your answers with sketches as much as you can

Question No.1 (10 marks):

1-a-In the front of the following statements, mark (✓) for True statement and (x) for False statement. (5 marks)

1. () All technical reports have only one format.
2. () Instruction sheets tell people how to perform a process.
3. () The preliminaries pages include: introduction, recommendation and discussion.
4. () The style of the report sells the report.
5. () Electronic mail is a more formal version of memos and letter
6. () Using figures and tables conveys information in most effective way for communication.
7. () References are an optional section in technical report.
8. () Technical writers usually use a less formal writing style than do non-technical writers.
9. () Typically, you write letters to people within your place of work, and you write memos to people outside your place of work.
10. () Agenda. A type of report listing items to be discussed during a meeting. Therefore it must be drawn up in advance.

1-b- The last stage of report preparation, revision the rough-draft ...discuss (5 marks)

Question No.2 (10 marks):

2-a-state the unusual aspects of style of instruction sheets (5Marks)

2-b- All oral presentations require consideration of many factors...discuss (5Marks)



Question No.3 (10 marks):

3-a-Compare between:

(8Marks)

1. Report style and report format
2. Letters and memos
3. Abstract and conclusion
4. Poster and proposal

3-b-Write a few lines to explain the following elements:

(2 marks)

1. Illustrations
2. Media for presenting visual aids

Question No.4 (10 marks):

4-a- Choose the appropriate word in box below in each of the following sentences. (5Marks)

Index – Acknowledgements – Covering letter – Scientific report - Questionnaire

- 1 ----- A type of report which gives an account of a test or experiment together with findings and conclusions.
 - 2 ----- A method of gathering information by questioning.
 - 3 ----- An alphabetical list of items discussed in a report together with their page and/or paragraph numbers.
 - 4 ----- An author's statement of thanks to people and organizations who helped during the preparation of a report.
 - 5 ----- An explanatory letter accompanying a report and including a contact point.
- (5 marks)

4-b-The following selection is taken from a formal technical report. Correct, rearrange, and rewrite them again. (5 Marks)

[1] pp.40-52 "Study of transient cooling of short cylinders by forced convection." 1995, S.M.Ahmed, B.Goldwater, and T.Kitayama, ASME, Vol.8, No10, J. Heat transfer

[2] McGRAW-Hill Com. LTD, "Principles of Radiation Heat Transfer." (2004), E.M.Sparrow. New YORK, Chapter4

Question No.5 (10 marks):

Design a cover page and list of contents for a technical report (choose title) (10 marks)

My best wishes

Dr. Mostafaa Sayed Mahmoud



PART ONE: IGNEOUS ROCKS

Answer two of the following questions using drawing when possible: (16 Marks)

- 1- What criteria would you use to differentiate between the following pairs (select **Only Four pairs** for answering): (8 Marks)
- a- Laccoliths – Lopoliths (2 Marks)
 - b- Normal granite – Rhyolite (2 Marks)
 - c- Epizonal granite – Catazonal granite (2 Marks)
 - d- Cinder cone – Composite cone (2 Marks)
 - e- Batholiths – Stocks (2 Marks)
- 2- Write brief descriptions for the different types of extrusions. (8 Marks)
- 3- Give short notes about the known cases of magmatic stopping. (8 Marks)

PART TWO: METAMORPHIC ROCKS (16.5 Marks)

Figures must be drawn whenever possible:

Answer this question:

(8 Marks)

- 1- A. Basic dyke has intruded into unmetamorphosed pelitic sediments with a temperature 115 °C. (4 Marks)
- Calculate the maximum temperature attained at distances 50 and 100 m. if the thickness of dyke is 500 m.
 - What is the maximum temperature attained at the contact and at 500 m. if the body have thickness 1000 m.
- B- Write on the most important mineralogical changes at the boundary between the low and medium metamorphic grades. (4 Marks)

Answer ONLY ONE of the following questions:

(8.5 Marks)

- 2- A. Define the term mineral assemblage. (4 Marks)
- What are the mineral assemblages in both pelitic hornfels and calcareous hornfels?
 - When the same outcrop may contain a number of different mineral assemblages?
- B- Which types of metamorphism can cause the formation of these textures and what are their original rocks?: (4.5 Marks)
- slaty cleavage - decussate - mosaic - porphyroblast and mesh textures
- 3- A. - Where would rocks of sanidinite facies be expected to form?. (4 Marks)
- What is the relation between sanidinite and hornfels facies?.
- B- Discuss the following: (4.5 Marks)
- Important changes in rocks during metamorphic processes with examples.
 - The factors that cause rocks to become metamorphic rocks, what are the sources of heat?.
 - Metamorphic rocks contain specific minerals and textures.

باقى الأسئلة فى الخلف

PART THREE: SEDIMENTARY ROCKS

(18 Marks)

Answer ONLY TWO questions from the following:

(18 Marks)

1. Write on the following:

(9 Marks)

- a- Evaporite rocks in view of their identification, mineralogical composition and their importance. (3 Marks)
- b- Classification of sandstones. (3 Marks)
- c- The form of the particles and the factors controlling the particle shape. (3 Marks)

2. Write briefly on the following:

(9 Marks)

- a- Constituents of carbonate rocks. (4.5 Marks)
- b- The two major groups of clay minerals. (4.5 Marks)

3. Write on the porosity and permeability in sedimentary rocks in view of definition, factors controlling porosity and permeability and their importance. **(9 Marks)**

With our Best wishes

Prof. Dr. Ali A. Khodeir

Prof. Dr. Hussein A. Hegazy

Prof. Dr. Mahmoud A. Essa



كلية العلوم - قسم الجيولوجيا



جامعة أسيوط

Principles of Structural Geology (345 G)

الزمن : ساعتان

٣١ ديسمبر ٢٠١٧

ANSWER THE FOLLOWING QUESTION:

Try to Illustrate your answers with suitable drawings when possible

I. Choose the correct answer for FIVE Of the following statements
and then rewrite in your answer paper (2 marks each)

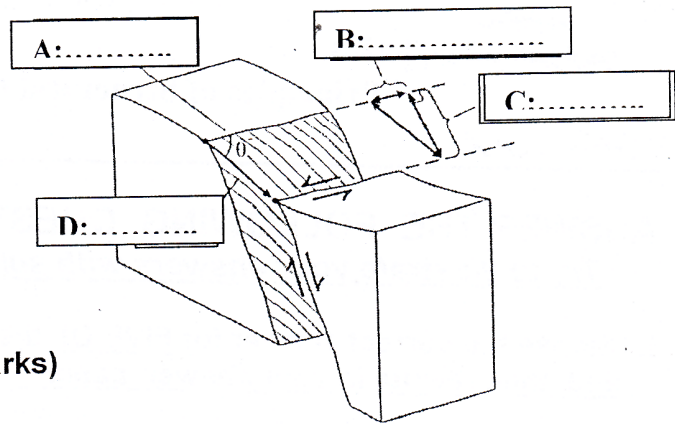
1. Which of the following promotes plastic behavior of rocks?
 - a. rapid application of stress and low pressure
 - b. slow application of stress and high pressure
 - c. high temperature
 - d. a and c
 - e. b and c
- 2- A non- cylindrical fold is characterized by
 - a - curved hinge line
 - b - straight hinge line
 - c - refolded hinge line
- 3- On a listric 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
 - a- interlimb angle
 - b- true dip angle
 - c- plunge angle
- 5-is a term used to indicate the direction of movement and rotation that occurred during deformation
 - a- Vergence
 - b- simple shear
 - c- heave
- 6- In Parallel folds
 - a- layer thickness maintains constant across the folded surface.
 - b- the layer thickness parallel to the axial surface remains constant.
 - c- interlimb angles are equal.

باقى الأسئلة فى الصفحة التالية

ANSWER ONLY FOUR OF THE FOLLOWING QUESTIONS:

II) a) What is the type of this fault?

b) Write the proper names of the different fault-slip components in the blank rectangles (10 marks)



III) Explain with some detail:

(10 marks)

- a) Factors that affect deformation.
- b) Tectonic forces and resulting deformation.

IV) Write on the following illustrating your answer with suitable drawings. (10 marks)

- a) Geometric classification of faults
- b) The relation between fold symmetry, axial surface and enveloping surface

V) How Salt Domes are formed ? and What is their economic importance?

(10 marks)

VI) Compare between

(10 marks)

- a) Grabens and Half grabens .
- b) Thrust faults and Strike-slip faults.

GOOD LUCK

Prof. Dr. Moustafa M. Youssef

بسم الله الرحمن الرحيم

جامعة أسيوط
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الثالث بكلية العلوم شعبة الجيولوجيا

(315G) (Micropaleontology & Historical Geology)

الزمن: ثلاث ساعات

الدرجة: 50 درجة

دور يناير 2018/2017م

Part One: Micropaleontology (30 Marks)

Answer Only Two questions from the following: (10 Marks, 5 marks for each)

- 1- Compare between the Radiolaria and benthonic foraminifera in: Systematic position - environmental habitat - shell walls - shell shape - mode of life
- 2- Discuss the effect of salinity and alkalinity in the distribution of foraminifera.
- 3- Discriminate by drawing between the different types of conodonts.

Answer the following question: (5 Marks)

4- Complete the following statements:

- A- and are examples for the rock forming microfossils.
- B- Dissolved oxygen in the sea water depends on and
- C- The wall structure of the earliest foraminifera is

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

- A- Chitinozoan walls are resistant to oxidation, thermal alteration, tectonism and recrystallization of the rock matrix, and thus they have a particular value to biostratigraphy and thermal maturity studies.
- B- Fossil spore and pollen grains share more or less the same morphological features except that of wall structure, type & position of aperture.
- C- Artificial "non-biological" classifications of spores and pollen grains are useful for post-Triassic material.
- D- Dinoflagellates with a dinokaryon are classified under Dinokaryota, while dinoflagellates without a dinokaryon are classified under Syndiniales.
- E- Fossil prasinophytes are exclusively marine and generally much larger than acritarchs.

6- Choose the correct answer: (5 marks; 1 mark each)

A- Criteria used in classification of spore/pollen grains are:

- 1- type of aperture
- 2- grain shape
- 3- grain sculpture
- 4- grain size
- 5- all of them

B- In an idealized life cycle of dinoflagellate, the stage of combined sexual and asexual reproductions is represented by:

- 1- motile diploid stage
- 2- motile haploid stage
- 3- motile diploid stage
- 4- all of them

C- Classification of dinoflagellate cysts is based on:

- a- number of plates
- b- arrangement of plates
- c- all of them
- d- none of them

D- Extraction of palynomorphs using HCl/HF acid treatment is based on the concept that:

- a- palynomorphs are sensitive to oxidation and diagenesis processes
- b- palynomorphs are made of organic walls that are resistant to non-fumic acids
- c- none of them

E- 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)
- d- none of them

7- Write briefly on **Only TWO** of the following: (5 marks; 2.5 marks each)

- A- Amb, aperture, and symmetry in fossil spores (with drawings).
- B- Standard palynological processing technique.
- C- Definition, Taxonomy, morphology, and ecology of acritarchs and chitinozoa.

Part Two: Historical Geology (20 Marks)

Answer **the following** questions:

The first question: Choose the correct answer (10 Marks)

- 1- What supercontinent composed of all continental crust was produced by the end of the Precambrian? a) Pangaea b) Laurentia c) Gondwanaland d) Rodinia
- 2- Which of the following terms of things found in rocks is NOT part of the Precambrian rock record? a) Stromatolites b) shelled organisms c) algae d) bacteria
- 3- The first form of life on the Earth
a) Cyanobacteria b) Angiosperms c) Gymnosperms d) Sponges
- 4- The principle of uniformitarianism is often summarizing
a) supernatural forces at work b) the present is the key to the past
b) conditions existing today cannot from rocks as in the past
d) rocks cannot be made in the laboratory
- 5- Which geologic period is named for its famous chalk deposits?
a) Cretaceous b) Jurassic c) Paleogene d) Triassic
- 6- The orogeny that take place during the Late Silurian to the Devonian is known as the.....
a) Acadian Orogeny b) Caledonian Orogeny
c) Appalachian Orogeny d) Urals Orogeny
- 7- Tillite is formed from.....
a) lake sediments b) river sediments c) marine sediments d) glacial deposits
- 8- The first form of vertebrate life on the Earth.....
a) Jawless Fish b) Armored Fish c) Cartilage fish d) Bony fish
- 9- The age of the Ediacaran fossils is
a) late Archean b) late Paleozoic c) early Proterozoic d) late Proterozoic
- 10- Paleozoic Era marked by glaciation episodes.
a) two b) three c) four d) five

The second question: Answer Only Two of the following (5 Marks)

- 1- Tabulate the rock-building fossils throughout the Paleozoic Era.
- 2- Summarize the evidences of life in the Archeozoic Era.
- 3- Discuss the Proterozoic climate.

The third question: Give reasons for Only Two of the following (5Marks)

- 1- The formation of Ural Mountains.
- 2- Formation of the Tethys Ocean.
- 3- The closure of Iapetus Ocean.

تمت الأسئلة مع التمنيات بالتوفيق

د. عمرو سعيد ضيف

إ.د. ناجح عبدالرحمن عبيدالله

Credit hour system - First semester - Final Examination 30/12/2017

Industrial Chemistry Program

Mineral prospection and industrial minerals and rocks (Chem 305)

Third Level

Allowed time 2 hour

Answer FOUR questions only of the following (50M)

Q1 (12.5 M)

- i- Mention five minerals used in the agricultural uses?
- ii- Write briefly on the application and importance of those minerals:
barite, perlite, zeolite and halite?

Q2 (12.5 M)

- i- Discuss the importance of seismic reflection as an exploration technique?
- ii- Why are industrial minerals so important?

Q3 (12.5 M)

- i- Mention the factors which are considered in selection of mineral fillers?
- ii- Explain the Direct geochemical exploration methods?

Q4 (12.5 M)

- i- Some industrial minerals and rocks have several environmental uses.
Comment?
- ii- What is graphite? And what is it used for?

Q5 (12.5 M)

- i- Compare between gravimeter and proton magnetometer?
- ii- Explain the applications of industrial minerals used in paint and ceramics industry?

بسم الله الرحمن الرحيم

Assiut University

Faculty of Science

Geology Department

جامعة أسيوط

كلية العلوم

قسم الجيولوجيا

Examination of First Semester 2017-2018, Course No. 319

Chronostratigraphy and Chemostratigraphy

امتحان مقرر 319 جيولوجيا (مقرر خاص)

طباقية زمنية وكيميائية

January 2018

Time: One Hour

PART 1: Chronostratigraphy (25 marks)

الجزء الأول : طباقية زمنية (٢٥ درجة) صفحتان

Answer **TWO** questions only of the following:

QUESTION1 (A-C):

1-A: Identify the Greenhouse Effect and its impact on global climate. Give one example on the effect of global warming on mass extinction during the geologic history (4.5 Marks).

١- أ : عرف ظاهرة الدفئية (الصوبة الزجاجية) وتأثيرها على الإنقراض الجماعي للأحياء الحيوانية والنباتية في نهاية العصر الطباشيري

1- B: What are the sources of uncertainty of radiometric dating ?(4 Marks).

١- ب : ماهي الصعوبات التي تواجه استخدام العناصر المشعة في تأريخ الصخور

1-C : Correlate between the Chronostratigraphic units and Geochronologic units (4 Marks.)

١- ج : قارن بين الوحدات الطباقية الزمنية والوحدات الزمنية الجيولوجية

QUESTION 2:

2: Define the GSSP concept and the prerequisites to be fulfilled by a Chronostratigraphic Type-Section (12.5 Marks).

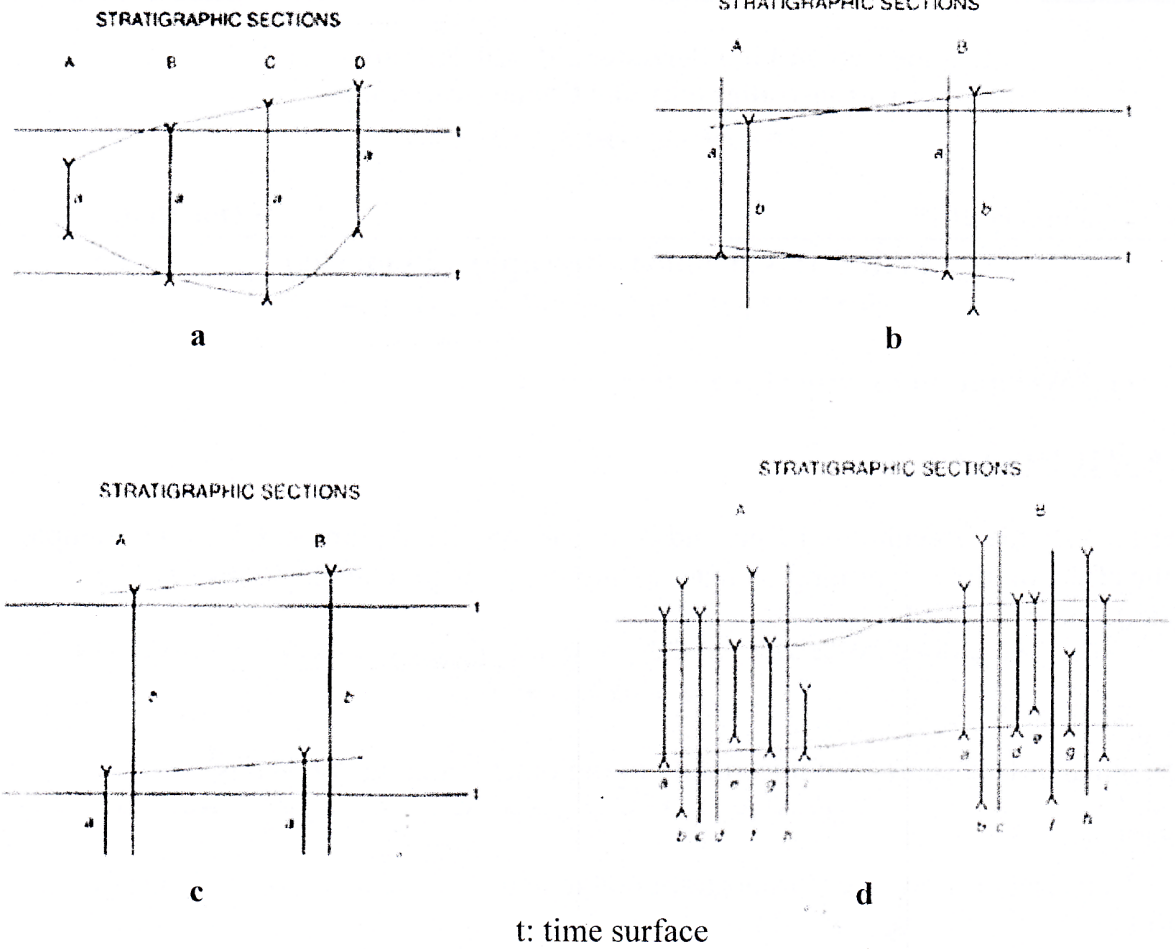
عرف مضمون القطاع الطباقى النموذجى الدولى ، والشروط اللازم توفرها فى إختيار هذا القطاع لتعيين الحد الفاصل بين الوحدات الزمنية.

أنظر باقى الأسئلة فى الصفحة التالية

QUESTION 3 (A-B):

3-A: Define the kind of the biostratigraphic unit in the following diagrams a, b, c and d (6 Marks)

٣-أ: عرف نوع النطاق البيوسترأجرافى فى الأشكال الآتية:



3-B :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)

٣-ب - افترض أن التاريخ الجيولوجى للأرض هو عام واحد فقط مدته ١٢ شهرا يبدأ من يناير وينتهى فى آخر ديسمبر. حاول أن ترتب زمنيا بالتوالى الأحداث البيولوجية التى جرت على وجه الأرض خلال هذه الفترة الزمنية

Good luck

Prof. Dr. Khaled Ouda



First Semester Final Examination **2017/2018**

Subject: Course No. 319G (Chemostratigraphy)

Time allowed: one hour

Students: Third Year Students

Date: Jan ., 2 , 2017

Examiner: Prof. Dr. Mamdouh F. Soliman

الامتحان في أربع صفحات

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-Asteroids are

- A. generally rocky and metallic objects found in the inner Solar System
- B. icy bodies and spend most of their time in the outer Solar System
- C. small bodies made of rock, dust and ice

2-Pallasites are assumed to represent pieces from small planet-like bodies

- A. True
- B. Fals

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

Ti, K, S, Cu, Pt, Si, Fe, Cr, Ir, Mg, Na, Co, Au, Zn, As

Chalcophiles:

Lithophiles:

Siderophiles:

4-Classifiy these elements into Major, Minor and Trace elements in the Earth's crust:

SiO₂, CuO, TiO₂, NiO, ZnO, Al₂O₃, MgO, MnO, P₂O₅

- A. Major:
- B. Minor:
- C. Trace:

5-Impact markers

- A. are material derived indirectly from the extraterrestrial bodies
- B. can be described as all chemical, isotopic and mineralogical species derived from the encounter of cosmic bodies
- C. are often immediately possible to recognize

6- The following are PGE exept:

Ir, Pt, Pd, Ru, Rh, Ag, As, Pb, Os, Re

7-Shocked Quartz is

- A. High pressure mineral
- B. Low pressure mineral
- C. contact metamorphism mineral

8-Which one of the following is NOT typical of " K/T event"

Spinels at the K/T boundary are

- A. low oxidized (low Fe^{3+} content)
- B. high Ni (and Co) contents
- C. low 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- Decreased Ti concentrations relative to Al 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-Write five elements of detrital character.

.....

13-The increased Si to Al ratio in sediments may reflect:

- A-.....
- B-
- C-.....

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

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

15- $\delta^{34}\text{S}$ = -----

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

- A. True
- B. False

A. Decrease
B. Increases
C. Remain stable

A. Low $\delta^{13}\text{C}$ values
B. High $\delta^{13}\text{C}$ values

A. True (if true, why?)
B. False (if false, correct)

A. True
B. False

- A. Sharp decrease in $\delta^{18}\text{O}$
- B. Sharp decrease in $\delta^{13}\text{C}$
- C. Enrichment of sulfide minerals (especially pyrite) across the K/T boundary
- D. Present of Bauxites
- E. Write the chemical formula of: Zircon, galena and pyrolusite

[illegible]

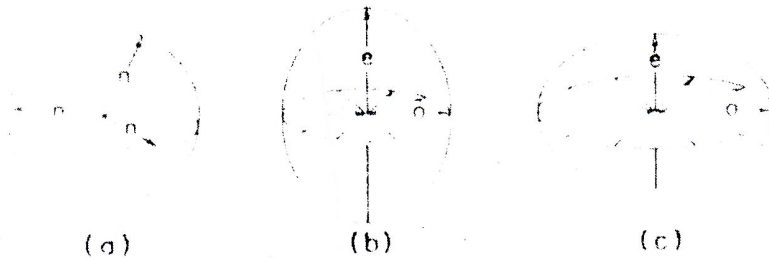


Ore Microscopy and Ore Petrology (431 G)

Answer TEN only of the following:

Note : 5 marks for each question

1. Identify birefractance and reflection pleochroism? Which minerals of the following have pleochroism and why?
Pyrite-molybdenite- magnetite, covellite, graphite
2. Discuss briefly the genesis of chromite and VMS.
3. Under microscope, when light penetrate deep below the surface of the polished sample and to be reflected back to observer from cracks and flaws within the crystal as diffuse light area.
a) What is the name of this feature?
b) What the reasons which lead to this feature caused?
4. What are similarities and differences between SEDEX and MVT deposits?
5. Look to the figure and then answer



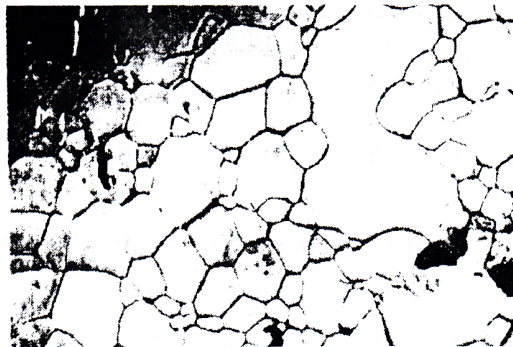
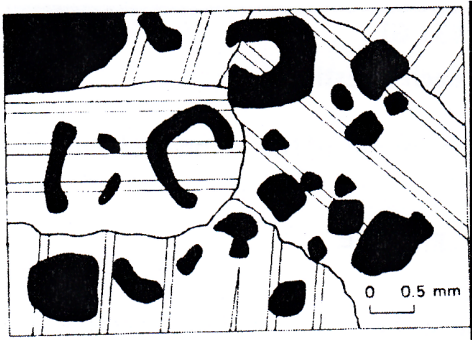
- a) The optical indicatrix for..... And is the ne is < - > or = no
 - b) The optical indicatrix for And is the ne is < - > or = no
 - c) The optical indicatrix for And is the ne is < - > or = no
6. Write the steps of formation the magmatic Cu-Ni, and PGE deposits.
 7. Replacement textures may be caused as a result of
1....., 2....., 3.....
 8. Which type of the deposits form concordant or discordant of the following :
Sulphides in lime stone-mineralized quartz veins – Stockwork - VMS- Chromite in basic and ultrabasic rocks.
 9. Discuss briefly the model of porphyry type deposit

LOOK TO BACK

10. Look to the photos and then answer

a. Oxide minerals in basic rocks

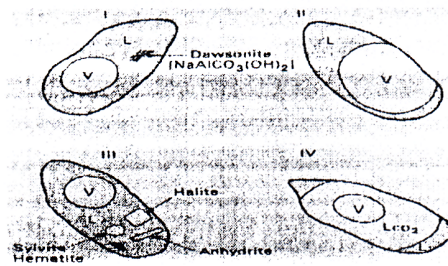
b. sulphides in basic rocks



a. Write texture name of (a) and (b)

b. What is the time relation between silicates and both the oxides and sulphides

11. Write the types of fluid inclusions in the following photo based on their composition



With my best wishes

Mohamed Abdel Moneim