Mansoura University Faculty of Science Geology Department Second Term Exam 18/06/2011		Subject: Geophysics (305) (305جف) كود المقرر المستوى الثالث Course: Paleomagnetism Time: 2 hours Full Mark: 60

I- A) Complete the following: (10 marks)

1. Magnetite has fine particle size, so it has high -------- force.
2. Geothite acquires stable remanence with properties like -------- when heated above 120° and cooled in an ambient field.
3. When the rock temperature is still very close to Tc, the magnetization is -------- to Ha.
4. Usually stability of TRM decreases with -------- grain size.
5. Many of sedimentary and metamorphic rocks in nature have --------
6. Reduction can produce stable chemical remanent by ------ of hematite to magnetite.
7. PRM acquired by application -------- of mechanical stresses in an ambient field at constant temperature.
8. Lava and oceanic sediments show the same -------- sequence of reversals.
9. Host rock provides strong -------- evidence for field reversal.
10. Early and late Paleozoic is characterized by --------.

B) Answer briefly four of the following; illustrating with drawings: (10 marks)

1. Time required for polarity change.
2. Evidence for reversal magnetic field from lava and oceanic sediments.
3. Iron-sulfur group.
4. Baked contact relate to TRM.
5. α–series, with examples of minerals.

II- A) Answer with YES or NO: (10 marks)

1. There is a distinct fall in the CRM intensity during reversal polarity.
2. The fundamental basis of paleomagnetism is stable of TRM of tectonically undisturbed rock unit.
3. Ancient field conforms are made a geocentric dipole.
4. In SQUID device, current flow is independent of the rate of which the specimen is introduced in measuring.
5. k, $\alpha_{45°}$ are used for precision statistical evaluation of paleomagnetic inclination.
6. β–series ranged in composition between magnetite and ulvöspinal.
7. Hematite and ilmenite have cubic structure.

8. The end member in γ–series is rutile.
9. Red sediments acquired post-depositional CRM by dehydration.
10. Polarity inversion has been recorded through geologic time.

B) Write briefly on four of the following; illustrating with drawings: (10 marks)

1. Importance of natural remanent magnetization.
2. Spinner magnetometer.
3. Illustrate the directions of NRM by fold tests.
4. Stepwise heating and cooling method for cleaning.
5. Non-dipole component of the field during a polarity change.

III- A) Match between (a) and (b): (10 marks)

(a)	(b)
1. The measured remanent declination gives the orientation	1. the field direction and represents an instant of time.
2. Field tests of stability of NRM,	2. the environmental noise problem often becomes critical.
3. Thermal cleaning is represented in alternating field method,	3. takes much longer period.
4. The a.f demagnetization system tends to become,	4. does not vanish.
5. A virtual geomagnetic pole is a pole calculated from a spot reading of	5. weak magnetic field.
6. The field intensity during a polarity transition	6. ambient field.
7. Intensity of magnetic change represented in decay and build up,	7. applied as fold test and baked contact.
8. IRM intensity is negligible for,	8. increasing noisy at field order.
9. In most rocks, TRM parallel to,	9. of the site with respect to the pole.
10. For a favorable measurement of specimen,	10. stepwise heating and cooling.

B) Briefly illustrate four of the following; drawings are important: (10 marks)

1. Chronology of the geomagnetic polarity reversals.
2. Intensity of geomagnetic field during a polarity reversal.
3. IRM, PRM and CRM.
4. γ –series with examples of minerals.
5. Direction of remanent vector in rock specimens.

المستوى الثالث - جيوفيزياء جف ٣٠٤ طرق التنقيب السيزمية

Mansoura University
Faulty of Science
Department of Geology

June, 2011
Date: 14 June 2011
Time: 2 hours
Full Marks: 60 marks

كلية العلوم
جامعة المنصورة

2nd term Exam in Seismic Exploration (304 جف)

Answer the Following *THREE* Questions

1) Write on each of the following *(20 marks)*

a) Normal move out (NMO) (7 marks)
b) Common Depth Point (CDP) stack (7 marks)
c) Interval velocity (6 marks)

2) Answer the following questions *(24 marks, 8 for each)*

a) What is the fold coverage? If you have 96 with 4x (geophone intervals) and 2s (shot point intervals), respectively, calculate the corresponding fold coverage?
b) How you could differentiate between different multiples graphically?
c) Why the Dip Move Out (DMO) correction is more expensive than NMO correction? Show how can you do this DMO correction?

3) Write in details on *TWO ONLY* of the following: *(16 marks)*

a) Filtering of seismic data (8 marks)
b) Define the migration of seismic data and write on the tangential method? (8 marks)
c) Amplitude Versus Offset (AVO) (8 marks)

المصححون:
أ.د/ محمد رفعت – أ.د./ حمدى صيصه *

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Saturday, 18 June **2011**
Final semester –Academic Year 2010/2011
Full Mark: 60
Time allowed: **2** Hours- (*09.00-11.00 reading time*)

B. Sc. Exam in GPHY-302 (Introduction to Well Logging) for Geology Program (Credit Hours Board)

Introduction to Well Logging (Relating to material taught by Dr. Mohammed Awad Ahmed)

Instruction: Answer All the following questions: Q1 (36.7%) (A and B), Q2 (33.3%) (A and B), and Q3 (30%).
In your answers use labeled diagrams and provide specific, named examples wherever possible. No aids allowed.

Q1 (36.7%): **(22 Marks)**

Q1-A: What these abbreviations mean **(8 Marks)**

1) BHC	2) LSS	3) BHT	4) MWD
5) LWD	6) GR	7) SGR	8) CGR

Q1-B: Write short notes on: **(14 Marks)**

1) List a step by step the procedure to analyze well logs. Be specific and detailed (8 Marks)

2) Geochemical behavior of potassium, thorium and uranium and natural radioactivity (6 Marks)

Q2 (33.3%): **(20 Marks)**

Q2-A: Complete the following **(16 Marks)**

1) The ...**(1)**... gives the radioactivity of the three elements combined, while the ...**(2)**... shows the amount of each individual element contributing to this radioactivity.

2) If there is a direct, continuous flow of formation water or hydrocarbon fluids into the borehole, then the logged temperature shows a marked ...**(3)**... at the inflow point.

3) The simple caliper log records the mechanical response of formations to drilling. A hole that has the same diameter as the bit which drilled it, is called ...**(4)**.... Holes with a much larger diameter than the bit size are ' ...**(5)**...' or ' ...**(6)**...'.

4) The best known use of borehole temperature measurements, simply as BHT values, is for calculating ...**(7)**....

5) The seven distinct sections of Wireline log layout are: ...**(8)**... , ...**(9)**..., ...**(10)**..., ...**(11)**..., ...**(12)**..., ...**(13)**..., and ...**(14)**....

6) To correct BHT values, the frequently applied methods is called the ...**(15)**... .

7) A ...**(16)**... is typically made at the end of each drilling phase, i.e. at the end of the drilling and before casing is put in the hole.

8) A persistent rise in temperature with depth is usually expressed in terms of a ...**(17)**..., that is in °C increase per kilometre of depth.

9) The choice of ...**(18)**... was limited to two of **1:1000**, **1:500**, **1:200**, **1:100**, **1:40** and **1:20**.

10) When a rock with high thermal conductivity is encountered, it will show a ...**(19)**... thermal gradient.

11) Sonic values are given in ...**(20)**... and the value is called the ...**(21)**....

12) The continuous temperature tool will give nor just the ...**(22)**... but also, using two separate thermistors, a ...**(23)**....

13) A frequent cause of tight spots is ...**(24)**... in the clay mineral mixture.

14) If gaseous hydrocarbons enter the well, the gas expands on entering the borehole, ...**(25)**... rapidly in temperature

15) Calipers may show a hole diameter smaller than the bit size (diameter). If the log has a smooth profile, a ...**(26)**... is indicated.

16) The clay material may be distributed in sand formations in three different forms: ...**(27)**..., ...**(28)**..., and ...**(29)**....

17) Natural radiation in rocks comes essentially from only three elemental sources: the radioactive elements of the ...**(30)**..., of the ...**(31)**... and of the ...**(32)**....

Q2-B: Which log can be applied in the following cases **(4 Marks)**

1) Calculation of primary porosity
2) Clay volume calculation
3) Water saturation calculations
4) Detection of gas bearing zone

Q3 (30%): **(18 Marks)**

1) Compare between the unwanted environmental effects of gamma ray and sonic logs (6 Marks)

2) Draw the fluid distribution near the wellbore in a permeable formation and describe how the different log measurements vary with distance into the formation, for

a) Hard limestone "tight limestone"
b) Arkose sandstone
c) Micaceous sandstone
d) Shale "smectite-rich swelling clay"
e) Permeable sand stone (fresh water)
f) Coal
g) Porous sand (gas, oil, saline water)
h) Kaolinite
i) Illite
j) Salt
k) Organic rich black shale
l) Anhydrite
m) Gypsum
n) Shale
o) Compact sandstone
p) Less compact shale
q) compact shale
r) Limestone "salt water"

(12 Marks)

BEST WISHES

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

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m) Gypsum
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o) Compact sandstone
p) Less compact shale
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(12 Marks)

BEST WISHES

المستوى الثالث - جيولوجيا - جيولوجيا بحرية (ج ٣١٦)

Mansoura University
Faculty of Science
Geology Department

Second Term Exam (May 2011)
Third Level (Geology Programme)
Subject: G-316 (Marine Geology)
Date: 28-6-2011 Time: 2 hours
Full Mark: 80 degree

Answer the Following Questions:

Question One: (30 degree)

(A)Mention causes: (20 degrees)

1- Concentration of seismic and volcanic activity at plate boundary..
2- Easily movement of plates of the hard lithosphere.
3- Disappearance of calcareous ooze in the deep ocean basins.
4- Appearance of coral in Red Sea and disappearance in Mediterranean Sea.
5- Pigmentation of fine sediments in deep waters by red colour.
6- Disappearance of primary and secondary waves during entering earth core.
7- Spreading of coal deposits in Europe in spite of the cooled climate.
8- Success of plate tectonic theory.
9- Index of continental drift.
10- Formation of some wadies in continents.

(B) What is the difference: (10 degrees)

11- Marine canyons and marine trenches.
11-Turbidity currents and convection currents.
12-Manganese nodules and phosphate deposits.
13-Volcanic arc and island arc.
15- Siliceous ooze and phosphates.

Question Two: (30 degree)

(A) Give a suitable term: (20 degree)

1- The essential acting force on the submarine erosion.
2- Connect the divergent boundary with the convergent boundary.
3- Submerged marine volcanic islands with flat tops.
4- Actual cause of subdividing continents.
5- Cone shaped ridges with steep slopes.
6- Coral island with rounded shape around shallow marine waters.
7- Sediments formed of fining upward sequence.
8- Accumulation of sediments in depressions of rugged areas in deep oceans.
9- Index of convergent ancient continental plates.
10-Hydrogenous sediments formed mainly of crystalline precipitated calcites.

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1- Hemalaya mountains.
2- Mid- oceanic ridge.
3-Japan islands.
4-Red Sea.
5-Indeas mountains.

Question Three:

1) What happened :

1- If a piece of continent remains over some hot
When oceanic plates diverge.
hen transform faults are not present.
ean basins closed and open.
agnetic earth diminishes.

e scientist:

agnetic stretches with different strengths in the o
mechanism of continental division.
ped on tops of volcanic islands.
the zone separating the crust from mantle.

(10 degree

With m

المستودعات - جيولوجيا - الجيولوجيا التطبيقية (٤٠٩)

Mansoura University **Faulty of Science** **Department of Geology** **May 2011** **Third Level-Geology**		**Date:** 2 July 2011 Final semester – Academic year 2010/2011 **Full Marks:** 60 marks **Time allowed:** 2 hrs

Final Exam in Subsurface and Petroleum Geology (G309)

Answer the following questions

Q1. Complete the following **(20 Marks)**

A. The stratigraphic traps may be defined as..... due to variation in ....., and are divided into two types : ..... and .....
The porosity of the first is produced ..... whereas that of the second is produced..... **(6 Marks)**

B. The secondary stratigraphic traps include two types: the first is produced due to ..... while the second is produced due to.....
The groundwater activity has the ability both of increasing ..... by ..... and ..... it by ..... **(6 Marks)**

C. Reefs are ..... rock aggregates of ..... that live in ..... marine conditions. They are commonly characterized by lack of ..... and are known as.....
Reefal limestones may act as ..... and ..... rocks **(7 Marks)**

Q2. Write on each of the following: **(20 Marks)**

A. Economic importance of subsurface geology **(7 Marks)**
B. Geochemical correlation **(6 Marks)**
C. Bacterial function for oil generation **(7 Marks)**

Q3. Discuss the following: **(20 Marks)**

1. Groundwater activity for oil accumulation **(10 Marks)**
2. Petroleum migration **(10 Marks)**

All the best

لجنة الامتحان والتصحيح:
أ.د./ محمود الشربيني د./ غالب عيسى* د./ شعبان مشعل د./ وليد الديسطي

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Saturday, 25 June **2011**
Second semester -Academic Year 2010/2011
Full Mark: 80
Time allowed: **2** Hours- (*09.00-11.00 reading time*)

B. Sc. Exam in Engineering Geology (G308) for Third Level (Geology)

Instructions: Answer three questions only, the first question is obligatory

Q1: Complete the missing spaces with suitable words **(20 Marks)**

1. The engineering geological matrix + changes produced by the engineering work = ...
2. The lithological factors that govern the durability of mudrocks include ... , ... , ... and ... especially the nature of the clay mineral fraction.
3. The strength of rock is influenced by ..., ..., ..., ..., and ....
4. Casing has several important functions during the drilling and completing of a well. It is used to ..., to ..., to ... and to ....
5. Air core drilling is preferred over RAB drilling as it provides a ....
6. Although the cable tool drilling method has been suppianted in recent years by other, faster drilling techniques, it is still the most practicable drilling method for ..., ..., and ....
7. Piles have distinguished from caissons by being ... into the earth rather than ....

Q2: Write short notes on each of the following: **(30 Marks)**

A. Dam failure (5 marks)
B. Armourstones (5 marks)
C. Atterberg limits (5 marks)
D. Blowout preventers (5 marks)
E. Swelling soils (5 marks)
F. Creep (5 marks)

Q3: Differentiate between (*support your answer with drawing if applicable*) **(30 Marks)**

I. Factors affecting on buttress and gravity dams (5 marks)
II. Integral and mechanical discontinuities (5 marks)
III. Belled and socketed cassions (5 marks)
IV. End-bearing and friction piles (5 marks)
V. Spillway and sluiceway (5 marks)
VI. Brittle and ductile deformation (5 marks)

Questions continue in the next page

Q4: Connect the significance of column (A) from column (B) **(30 Marks)**

Column-A	Column-B
1. Intact rock material	A. Skid resistance.
2. Abrasiveness	B. Consistency test.
3. Core barrels	C. Loose, heterogeneous material cover solid rock.
4. Abutment	D. Single, double and triple tube.
5. Polished stone value	E. Depend on grain size, shape of quartz in rock material.
6. Discontinuities	F. The structure of the dam rest.
7. Slaking	G. Piece of rock about the size of a laboratory test specimen.
	H. Repeat wetting and drying.
	I. Include bedding, joints, fractures, faults and shears.

ALL THE BEST

Dr. Waleed Shukry El Diasty

Mansoura University
Faculty of Science
Geology Department
Date:21/06/2011

Final Exam. (May 2011)
Third Level (Geology)
Subject: Advanced Stratigraphy (G 303)
Course: علم الطبقات المتقدمة
Time: 2 hours Full Mark: 60

Answer the following questions:

Question one: 25 marks

A. Answer with yes or no: (9 marks)

1. Chemostratigraphy is one of newer subdisciplines stratigraphy.
2. The law of Johannes Walther discussed the facies succession.
3. The term "sequence' was introduced by Sloss *et al.* to designate a stratigraphic unit unbounded by subaerial unconformities.
4. The application and definition of sequence stratigraphic concepts are dependent of scale.
5. Bentonites or magnetic polarity boundaries are time markers.
6- Transgressive system tracts are bounded below by underlying sequence boundary and above by maximum flooding surface.
7- Highstand system tracts are bounded below by maximum flooding surface and above by overlying sequence boundary.
8. Joseph Barrell stated the most fundamental events in geologic history- the time-space distribution of deposition and non-deposition.
9. In 1977 Peter Vail and Robert Mitchum published that a seismic reflection surface represents a time line.

B. Define and illustrate the followings: (16marks)

1. Concepts of facies, facies association and facies models.
2. Types of stratigraphy, defined on the basis of the property they analyze.
3. Sequence stratigraphy in the research, integrated data…etc.
4. Sequence stratigraphy and its overlap with sedimentology and context of inter disciplinary stratigraphy.
5. Concept of clinoform.
6. Transition from marine to nonmarine environments.
7. The broad categories of depositional settings.
8. Seismic stratigraphic terminology.
9. Advantages of seismic surveys as an integral part of hydrocarbon exploration.
10. The base level and the two schools of thought regarding its concept.

Question two: (15 marks)

A. Complete the followings: (6 marks)

1. The available sequence stratigraphic literature has focused on ..... &....
2. The main building blocks of the sedimentary record from sequence prospective include…....and……..
3- The science dealing with the study of soil is called……..
4. Geological applications of paleosols include……..,…. and……
5. The four basic steps in a systematic sequence stratigraphic approach are….,…….and……..
6. The concept of sediment accommodation..... describes ……

Please turn over

لجنة الإمتحان والتصحيح*:

B. Write short notes on the followings: (9 marks)

1. Stratigraphic contacts using illustrations?
2. Ichnology as an approach to facies analysis.
3. Types of well logs, their units and geological applications.

Question three: Write short notes on: (20 marks)

a. Stratigraphic procedures. (6 marks)

b. Stratigraphic analysis of sedimentary basins of deposition. (7 marks)

c. Stratigraphic maps.(7 marks)

Prof. Dr. Hosni Hamdan Hamama والله ولى التوفيق