Mansoura University
Faculty of Science
Geology Department
Third level
(Geology)
Second Term (May, 2015)

Subject: Geology
Courses: Micropaleontology and Vertebrate fossils (G304)
Time allowed: TWO hours
Date: 18 . 5 . 2015
Full mark: 60 marks

Answer the following questions

Question 1: (15 marks)

(a) The articulation in ostracode carapace. ***(with drawings)*** (9 marks)

(b) **Do as shown between brackets:** (6 marks)

(i) The adductor muscle scar is one of the dorsal muscle scar group. (Correct)

(ii) ..... pore canals usually widely scattered over the carapace while the ..... pore canals crossed the marginal zone . (Complete)

(iii) The calcified inner lamella in ostracode carapace may bear a prominent ridge that is called ..... and less prominent ones that are called..... (Complete)

(iv) Pits, tubercles, sulcus and alae on the ostracode carapace are negative features. (Correct)

Question 2: (15 marks)

(a) The guidelines for the orientation of the order Podocopida. ***(with drawings)*** (9 marks)

(b) **Do as shown between brackets:** (6 marks)

(i) Concerning the temperature, the cold water loving ostracodes are called ..... while the warm water loving ones are called ..... (complete)

(ii) The anterior extremity of the ostracode carapace is generally pointed with thinner spines where as the posterior one is rounded with strong spines. (Yes or No and correct the sentence if it is wrong).

(iii) The ostracodes which can only survive within a narrow range of salinities are called ..... while those are able to adapt to a wide range of salinities are called ..... (complete)

Question 3: Answer the followings (15 Marks)

a- Classify the Phylum Chordata?
b- Write short notes on fish with jaws and paired limbs?
c- Draw the amniotic egg and basic skull patterns in reptiles?
d- Mention examples of Agnatha, Pterosaurs, Marine Reptile and Anthropoids?
e- What are the points of contrasts between apes and man and between Marsupials and Placentals?

Question 4 (15 Marks)

a- Write an essay about: How to study fossil invertebrates? (5 marks)
b- Compare between the two orders of Dinosaur? (4 marks)
c- Draw with labels a pterosaur and *Archaeopteryx* (2 marks)
d- Complete: (4marks)
1- The larger the reptile the longer it .....body warms.
2- The three orders of Synapsids are.....,..... And.....
3- The sail-like membrane of .....was probably a temperature.....
4- The representative early reptile Anapsids are ..... And.....

Examiners: *Prof. Dr. Abdalla Shahin, Prof. Dr. Salah El Beialy*
Prof. Dr. Hosny Hamama Dr. Adel Kamel

Mansoura University
Faculty of Science
Department of Geology
Date: 21/5/2015
Hall: 10, and 11

Time: 2 hours
Subject : Field Geology
Code: G305
Total marks: 60 marks
3rd level, Geology Program

Answer the following questions

Q1. One time in your field work you find:

1- Your field data measurments of strikes and dips of a mega fold match a fold of noncylinderical geometry; explain by steronet how you got this interpretation. (3 marks).

2- The magnetic needle of your field compass oscillates when you pass through a certain area; mention the possible reason of these oscilations and explain how you can overcome this problem (3 marks)

3- The stratigraphic sequence on a geological map is repeated in the following order A, B, C then A, B, C, D then D, C; explain by suitable drawings the common structures represented by these sequence repetitions. (4 marks)

Q2. Match only five statements: 10 marks

your answer should be written for example A1, note that this may be incorrect answer
It is not allowed to match the same statements more than one time; if you did, the both will be wrong

A	The attitude of an axial plane of a fold measured in the field is N30°E, V	1	Strike is 030° and dips 90°NE
B	Orientation of a horizontal line in space	2	Plunge direction/plunge angle
C	It is a graduation of reading orientation	3	Older rocks occur downdip
D	Attitude of a fold axis is N30°E/30°	4	Graduated circle
E	It is used for reading the inclination of a line	5	Graduated arc
F	Field data indicate attitudes of beddings 030°/30° and 300°/30°	6	Determined on both sides of the geographic space
		7	The fold is a non-plunging upright
		8	The fold plunges northward

Q3. Write with suitable drawings on the followings: 40 marks; 5 marks per each.

1- The different types of layer thickness and their matual relationships with dip and gradients.
2- Instructions needed before using Brunton compass
3- Expousure widths of symmetrical and asymetrical folds
4- The V-rule about a stream
5- The fold pattern across traverse faults.
6- The fault parameters measured from maps anf cross sections.
7- The shape of strike lines relative to strike distances and shape of represented surface.
8- Exposure pattern of plunging and doubly plunging anticlines and synclines.

Best wishes

Examiners: Prof. A. Elshahat, Prof.M. El Sherbini, Dr. G. Essa, Dr. A. Shalaby*

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Monday, 25 May **2015**
Final semester –Academic Year 2014/2015
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: 3.0)

GPHY302 / Spring 2015–"B.Sc. in Geology-Geology Program"-" Elective Course"

(Pre-requisite: (GPHY 301 or Consent of Instructor)

GPHY302-Introduction to Well Logging (Relating to material taught by Dr. Mohammed Awad)

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

Q1-A) MATCHING (12 MARKS)

Directions: Fill in the blank next to each item with the correct corresponding **letter in capital letters** (**A-L**). For each item there is only **one correct** answer. NO option will be used more then once. Each matching question will be worth **1 mark**. The matching section is worth **12 total marks**.

1. Match

Answer	Theme items		Option
	1. Clay volume calculation	A	Sonic Logs
	2. Water saturation calculations	B	Neutron-Density Log 'Negative Separation'"
	3. Well logs provide	C	dropping rapidly in temperature
	4. Well logging is defined as	D	Resistivity Logs
	5. If gaseous hydrocarbons enter the well, the gas expands on entering the borehole	E	continuous, in situ measurements of parameters related to porosity, lithology, presence of hydrocarbons, and other rock properties of interest
	6. Detection of gas bearing zone	F	Gamma-Ray, Neutron, Density and Sonic Logs
	7. Calculation of primary porosity	G	a record of characteristics of rock formations traversed by a measurement device in the well bore
	8. Well logging interpretation	H	is the process which attempts to combine a knowledge of tool response with geology, to provide a comprehensive picture of the variation of the important petrophysical parameters with depth in a well
	9. The CGR, or computed gamma ray curve	I	is the total contribution of the three elements in API units.
	10. The difference between the SGR and the CGR	J	, represents the contributions of only the thorium and potassium in API units
	11. Depositional environment and condensed sequences	K	Use of the Th/U ratio
	12. The SGR, or standard gamma ray,	L	is the contribution, in API units, of uranium

Q1-B) TRUE/FALSE (10 MARKS)

Directions: Read the statement completely and determine if the statement is **true** or **false**. In the blank provided, write "**True**" for a true statement and "**False**" for a false statement. Each True/False question is worth **1 mark**. The True/False section is worth a total of **10 marks**.

_____1. The borehole's actual diameter and shape depend on the formation drilled.

_____2. The SP may deflect either to the left (negative) or to the right (positive) of the shale base line, depending on the relative salinities of the formation water and of the mud filtrate

_____3. Generally there will be negative SP deflections, when the formation waters being more saline than the mud filtrate. Deflections to positive values however, occur with fresh formation waters, or at least those fresher than the mud filtrate

_____4. Typical gamma ray tool transmitters (transducers) are either magnetostrictive or, more commonly, piezoelectric and translate an electrical signal into an ultrasonic vibration

_____5. Salt is inefficient; it keeps heat in and has a low thermal conductivity. Shale, conversely is very efficient, let's heat escape rapidly and therefore has a high thermal conductivity

_____6. In circular boreholes, the four-arm device caliper logs are equal. They separate in noncircular holes as one caliper reads the long axis and the other reads the short axis

_____7. A frequent cause of tight spots is abundant smectite in the clay mineral mixture

_____8. The separation between the cruves from the shallow and deep tools, plotted on the same resistivity scale, is diagnostic of hydrocarbons. It is sometimes called the hydrocarbon separation, and is used in the "quick look' technique for locating oil or gas

_____9. The sonic log is affected by the mud additives barite and KCl. Barite does not affect the result while KCl will only affect the potassium result

_____10. The spectral gamma ray log gives the radioactivity of the three elements combined, while the simple gamma ray log shows the amount of each individual element contributing to this radioactivity

Q2) MULTIPLE CHOICE (18 MARKS)

Directions: Read each question and all the answers thoroughly and then identify the choice that best completes the statement or answers the questions below. Place the correct answer (**A-D**) in **capital letters** in the box provided next to each numbered question. Each multiple choice questions will be worth a total of **2 marks**. The entire multiple choice section is worth **18 marks**.

[ ] 1. The simple gamma ray sonde can be combined in many tools; it is run both ..... in the borehole (sonic and resistivity tools) or against the borehole wall, that is ..... (density and neutron tools).

A. circular
B. incircular
C. eccentered
D. centered

[ ] 2. The unwanted logging effects of the long spaced sonic are.....

A. noise spikes
B. signal attenuation
C. dynamic compensation system
D. cycle skipping

[ ] 3. Calipers may show a hole diameter smaller than the bit size (diameter). If the log has a smooth profile, a ..... is indicated.

A. saline water
B. hydrocarbon
C. mud-cake build up
D. tight spot

[ ] 4. A sand zone with 10 % porosity, 12 % clay volume and water saturation of 30%, the hydrocarbon saturation is .....

A. 90%
B. 88 %
C. 70 %
D. 22

[ ] 5. The readings of the SP in shale are usually fairly constant and tend to follow a straight line on the log, called the ....., is assumed to be zero. In permeable formations, the SP curves show excursions from the shale base line. In thick beds it tends to reach an essentially constant deflection defining a .....

A. Static SP
B. Pseudo SP
C. shale base line
D. sand line

[ ] 6. Uranium passes into sediments in three principal ways:.....

A. adsorption by organic matter
B. heavy minerals such as zircon,
C. chemical precipitation
D. chemical reaction in phosphorites

[ ] 7. Sonic values are given in .....and the value is called the .....

A. interval transit time
B. integrated transit time
C. meter per second
D. microseconds per foot

[ ] 8. The unwanted logging effects of the borehole-compensated sonic are.....

A. noise spikes
B. signal attenuation
C. dynamic compensation system
D. cycle skipping

[ ] 9. The principal functions of drilling muds are: to remove the ....., to prevent ..... from flowing into the borehole, to prevent the borehole walls from ....., and to cool the .....

A. formation fluids
B. caving
C. cuttings
D. bit

The Model Answer

Q3) SHORT ANSWER (20 MARKS)

Directions: Read the statement below completely and thoroughly then fill in the blank with a short answer that **BEST** answers the question. The short answer section is worth a **combined 20 marks**.

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

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

3. Source-rock identification (6 Marks)

BEST WISHES

Mansoura University
Faculty of Science
Geology Department
Third level
(Geology and Geophysics)
Second Term (May, 2015)

Subject: Geology
Courses: Advanced Stratigraphy
(G 303)
Time allowed: TWO hours
Full mark: 60 marks
Date: 28 . 5 . 2015

Answer the following questions

Question 1: Do as shown between brackets: (18 marks)

1- In the correlation by stable isotopes, the lower values of δ^{18} O generally reflect ..... and the positive increase in δ^{13}C generally reflects ..... On the other hand the δ^{34}S curve is potentially useful as means of chronocorrelation of ..... (Complete)

2- The lithocorrelation includes (continuous lateral tracing of lithostratigrahic units - short term depositional events) (Choose the correct)

3- The system is a rank of lithostratigraphic units, whereas the period belongs to the biostratigraphic units. ((**Yes** or **No** and if No, please correct)

4- The Paleogene Period is divided into ..... , ... and ..... Epochs whereas the Late Triassic Epoch is divided into ..... , ... and ..... Ages. (Complete).

Question 2: Short notes on: (22 marks)

(a) The correlation by instrumental well logs. ***(with drawings)***

(b) The main types Biostratigraphic Units. ***(with drawings)***

Question 3: Write briefly on: (20 marks)

The marine transgression and its pattern of sedimentation and indicate how this pattern matches well with Walther's Law in stratigraphy. ***(with drawings)***

Examiners: *Prof. Dr. Abdalla Shahin, ,* *Prof. Dr. Hosny Hamama*

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura – EGYPT

Monday, June 01, 2015
2nd semester, Academic year 2014 – 2015
Full mark: 80
Exam time allowed: 02 Hrs (09.00–11.00 AM)

FINAL EXAM IN ENGINEERING GEOLOGY (G308)

FOR THE THIRD LEVEL GEOLOGY

Answer all the following questions

Question 1: Define the following categories/terms in light of your study (30 Mark)

1. Engineering Geology as defined by the Association of Engineering Geologists (3 marks),
2. Creep, as a type of rock deformation, with drawing (3 marks)
3. Consistency limits (3 marks),
4. Principals control on the breakdown of mudrocks (3 marks),
5. Roofing and facing materials (3 marks),
6. Intact rock materials (3 marks),
7. Road aggregates (3 marks),
8. Portland cement (3 marks),
9. Cable tool drilling method (3 marks), and
10. Ground mass, give examples (3 marks).

Question 2: Compare between the following counterparts (20 Mark)

1. Yield and ultimate tensile strength (2 marks),
2. Air core and rotary air blast drilling methods (2 marks),
3. Traveling block and top drive (2 marks),
4. Pipe and blind rams (2 marks),
5. Single and double tube core barrels (2 marks),
6. Corestone and solution weathering (2 marks),
7. Sluice and spill ways (2 marks),
8. Gravity and arch dams (2 marks),
9. Integral and mechanical discontinuities (2 marks), and
10. Compressive and tensile strength (2 marks).

Question 3: Complete the following sentences with a suitable word/s in the given blank spaces (20 Mark).

1. The significance of weathering with regard to engineering projects depends upon two factors (1) ..... and (2) .....
2. A rock for building stone should be (3) ....., (4) ....., (5) ..... and (6) .....
3. The shape of aggregate particles is an important property and is governed mainly by the (7) .....
4. Stripping may occur in road aggregates as a result of two principal causes are (8) ..... and (9) .....
5. The shape and surface texture of the pebbles in a gravel deposit are influenced by the (10) ..... and the (11) .....
6. The most common causes of dam failures are (12) ..., (13) ....., (14) ..... and (15) .....
7. (16) ..... is explosive and is associated with underground works in carbonaceous rocks, but may be also be derived from peaty organic matter contained within unconsolidated clays and silts.
8. The (17) ..... test involves moving a specially shaped pin a short distance over a prepared rock sample and thence measuring weight loss.
9. One of the most important parameters of road aggregate is the (18) ....., which influences skid resistance.
10. The presence of feldspars in sands used in concrete has sometimes given rise to (19) ....., and mica and particles of shale adversely affect the strength of concrete.
11. Both of embankment and buttress dams are considered as the preferred structure can be constructed where (20) .....

With all my best wishes

Dr. Waleed Shukry El Diasty

Mansoura University
Faculty of Science
Geology Department

Date: 4 -6- 2015

Second Term Exam (May 2015)
Third Level (Geology Program)
Subject: Marine Geology (G316)
Time: 2 hours
Full Mark: 80 degree

Marine geology

Question One: Nominate the given features: **(20 Degrees)**

1- Formed of accumulation of hard skeletal remains.
2- Hydrogenous sediments formed of crystalline calcite.
3- Sediments formed of fining upward sequence.
4- Essential acting force in the submarine erosion.
5- Connect the divergent boundary with convergent boundary.
6- Disappearance of primary and secondary waves for few minutes .
7- Submerged marine volcanic islands with flat tops.
8- Formation of some wadies in continents.
9- Cone shaped ridges with steep slopes.
10-Coral island with rounded shape around shallow marine water.

Question Two: Give reason: **(20 Degrees)**

1- Absence of calcareous ooze in deep ocean floor.
2- Actual cause of subdividing the continents.
3- Non burial of the manganese nodule in spite of slowest chemical action.
4- Spreading of coal deposits in Europe in spite of cold climate.
5- Focus of earthquakes and volcanic activity at the plate boundaries.
6- Divergence of the ocean plates.
7- Formation of Hemalaya Mountains.
8- Red sea is nascent ocean.
9- When magnetism of the earth diminishing.
10-Occurrence of coral reefs in the deep oceans.

بقية الأسئلة خلف الصفحة

Question Three: **What is the difference:** **(20 Degrees)**

1- Outer core and Asthenosphere.
2- Volcanic arc and island arc.
3- Primary waves and secondary waves.
4- Convection currents and turbidity currents.
5- Marine canyons and marine trenches.
6- Continental crust and oceanic crust.
7- Calcareous ooze and siliceous ooze. Give examples.
8- Phosphates and manganese nodules.
9- terrigenous sediments and chemical sediments.
10- Rift basin and trench basin.

Question Four: **Mention only:** **(20 Degrees)**

1- Location of ancient and recent parts of the ocean floor.
2- Sources of marine sediments in ocean.
3- Rate of spreading in Mid-ocean ridge of both Atlantic and Pacific oceans.
4- Age of oldest fossils in ocean floor.
5- Nominate of mineral make rocks acquires magnetism.
6- Nominate of chemical mineral deposited from acidic sea water.
7- Common economic minerals in deep ocean basins.
8- Rate of accumulation of deposits in ocean basin.
9- Index of continental drift.
10- A continent lies above hot spot.

مع أطيب التمنيات بالنجاح ،،،،،،

لجنة الإمتحان والتصحيح*:

أ.د. أمين غيث* د. حمدى سراج د. محمد عوض د. طارق عنان

Mansoura University
Faulty of Science
Department of Geology

Date: 8/6/2015
Final semester – Academic year 2014/2015
3rd Program Geology
Full Marks: 60 marks
Time allowed: 2 hrs

Final Exam in Subsurface and Petroleum Geology (G309)

Answer the Following Questions

Q1. Write briefly on each of the following: **(20 Marks)**

a. Secondary migration **(5 Marks)**
b. The role of groundwater in oil accumulation **(5 Marks)**
c. Oil shale **(5 Marks)**
d. Factors affecting distribution, frequency, and mobility of chemical elements **(5 Marks)**

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

a. Subsurface Geology **(4 marks)**
b. Correlation **(4 Marks)**
c. Migration **(3 Marks)**
d. Facies **(3 Marks)**
e. Functions of bacteria in oil formation **(3 Marks)**
f. Photosynthesis **(3 Marks)**

Q3. Give short notes on each of the following: **(20 Marks)**

a. Conditions of genesis of hydrocarbon **(5 Marks)**
b. Prospecting and exploration of economic deposits **(5 Marks)**
c. Stratigraphic information needed for subsurface evaluation **(5 Marks)**
d. Primary stratigraphic traps **(5 Marks)**

All the best

Dr. Ghaleb Essa

لجنة الامتحان والتصحيح:
أ.د. آدم الشحات د. فريد مكروم د. غالب عيسى* د. حمدى سراج