Mansoura University
Faculty of Science
Geology Department
Date: 02/01/2016

Summer Term Exam. (Jan.2016)
Fourth Level (Geophysics)
Course No.G407
Course: Quaternary Geology& Delta
Time: 2 hours Full Mark: 60

Answer the Following Questions

Question One : Tick (√) or (X) and correct

1- The Earh' eccentricity varies due to attraction with gravity of Moon.
2 –The continental glacier is an ice sheet.
3- The terminal part left after glacier retreat is occupied partly by end morain.
4- Pinus and Betula represent the pollen association to the early temperate zone.
5- The ice cap is always depleted in O16
6- The global sea level is falling due to glacial isostasy during the glacial stage.
7- The older stage in the Alpine system is Würm.
8- The shrinkage of pluvial lakes indicates cold- dry climate.
9- The permeability is changed vertically in the sediments of braided stream.
10- The drainage basin with tropical climate yields high medium grained sediments.
11- The long shore currents are responsible for sediment accumulation.
12- The linear mouth bar displays a very well sorted sediments.
13- The shoestring sand body of the alluvial valley is formed under highly varied discharge.
14- The delta morphology is a function of shelf slope
15- The tidal flat of a delta with tropical climate is occupied by mangroves.

(15 marks)

Question Two: Complete

1-The Pleistocene is ended at.....or at.....
2-All morains are made of.....
3- The eccentricity is a measure of departure of.....from.....
4- Eskars are..... .....deposited in the glacial valley.
5- The..... is responsible for the greater part of sea level rise.
6- .....,..... ...,.....,....., are typical periglacial landforms.
7- ....and.....are two standards used in oxygen isotope determination.
8- .....and..... are the pollen association characteristic to pre-temperate zone.
9 .....,.....,.....and...../....are components of the main river system.
10- The.....is occupied by the functioning distributary channels.
11- The ....is a function of the drainage basin area.
12- ..... ,.....and..... .....favor delta migration by lobe switching.
13- Tidal ridges oriented..... to basin axis suggests deposition in an open ends trough.
14-All waters of the northern Nil delta lagoons are brakich except.....lagoon.
15- The Nile delta is now changed from.....dominated to.....dominated.

(15 marks)

Question Three: Choose the correct answer:

1- The duration of Quaternary stages is
a) 100 Ka b) 41 Ka c) 22 Ka
2- Which of the following is typical glacial landform.
a) pluvial lake b) pro glacial lake c)kettle lake
3- Which of the following is Not periglacial landform.
a) active layer b) frozen layer c) organic layer
4- The characteristic sediment of the periglacial zone is
a) till b) loess c) varves
5- Which of the following is typical of periglacial area
a) rock glacier b) hanging glacier c) warm glacier
6- The pollen association of the early temperate zone is characterized by
a) Quercus b) Picea c) Betula

Prof.O.Hegab and Prof. M. Abed لجنة التصحيح:

7- The sea level fluctuation is not evidenced by
a) marine terraces b) fluvial terraces c) lacustrine terraces

8- Eemian is the last interglacial stage in the
a) Alpine system b) USA system c) NW Europe system

9- The upper Nile delta plain extends above
a) northern lagoons b) supra tidal zone c) coastal heads (Ras)

10- The drainage basin with arid climate produces
a) braided stream. b) strait stream c) meandering stream

11-When the distributary mouth bar is linear ,the predominating process is
a) inertia b) friction c) buoyancy

12- The littoral currents are responsible for
a) sediment entrainment b) sediment pilling c) sediment drift

13- The sediments of the wave dominating delta are rich in
a) beat b) evaporates c) shell fragments

14- The seaward bifurcation channels are common in deltas with
a) high inertia b) high friction c) high buoyancy

15- The average depth of the northern Nile delta lagoons is
a) 2 m b) 3 m c) 5 m

(15 marks)

Question Four: Write in Two of the following

1- The morphological, lithological and biological evidences of Quaternary in the glacial area.

2- The Quaternary systems in the different parts of the world, basis and subdivision.

3- The discharge effectiveness index play the main rule in determining the present and the future of deltas, Discuss.

4- The geomorphology and sedimentology of the Lower Nil delta plain.

(15 marks)

Good Luck

Prof. Omar Hegab

Mansoura University
Faculty of Science
Department of Geology

Final Exam: fourth year geophysics (5/1/2016)
Course: well logging: GPHY-401
Time: 2 hours

Answer the following questions:

Q1:

A- Complete: **(12 Marks)**

i- Origin of Spontaneous potential (SP) results from .....

ii- Induction logs can be used effectively in boreholes filled with ..... mud while Laterolog can be used in ..... mud.

iii- Positive separation between Rt and Rxo indicates..... An increase in density porosity along with a decrease in neutron porosity demonstrates..... zone. Laterolog is usually recorded in tracks..... with..... scale

iv- The Three types of Permeability are called ....., ..., and .....

B- True or False: **(8 Marks)**

i- Gamma ray logs measure the natural radioactivity of formations ( ).

ii- Long normal (64 inch spacing) tool measures the resistivity in invaded zone ( ).

iii- SP log is measured in track number II ( ).

iv- Gamma ray spectrometry records the natural radioactivity of thorium, potassium, and uranium separately ( ).

Q2:

A- Discuss with drawing Borehole environment **(10 Marks)**

B- Demonstrate the following: 1) How to calculate the volume of shale from gamma ray log
2) Pickett or Hingle crossplot? **(10 Marks)**

Q3:

A- Draw sketch showing the different responses of SP in permeable sand and shale zones? **(10 Marks)**

B- Write with drawing the basic theory of induction log? **(10 Marks)**

Q4:

A- Draw sketch of neutron log and mention its applications? **(10 Marks)**

B- Illustrate the basic principle of sonic log and discuss the hydrocarbon effect on it? **(10 Marks)**

Best wishes

لجنة التصحيح والمناقشة: أ.د. إبراهيم كرات أ.د. حسني غزاله أ.د. حمدي صيصه د. عادل كامل*

الفرقة : الرابعة الشعبة: جيوفيزيقا المادة: تحليل مركب ر ١٠٤	كلية العلوم- قسم الرياضيات	امتحان دور يناير ٢٠١٦ الزمن: ساعتان التاريخ: ٩ / ١ /٢٠١٦

أجب عن الأسئلة الآتية: الدرجة الكلية (٨٠)

السؤال الأول: (٢٠ درجة)

أختار الإجابة الصحيحة بين القوسين:

(i) $f(z)=\overline{e^{z}}$ (تحليلية- ليست تحليلية) (٥ درجات)

(ii) $|e^{z}|=(e^{x},i,r)\ ,\ \arg e^{z}-(iy,-y,y)$ (٥ درجات)

(iii) $\lim_{z\to 0}\frac{\overline{z}}{z}$ (موجودة- غير موجودة) (٥ درجات)

(iv) $u=\cos x\cos hy$ (توافقية – ليست توافقية) (٥ درجات)

السؤال الثاني: (٢٠ درجة)

(أ) أثبت أن جاكوبى التحويل يعطى بالعلاقة $\frac{\partial(u,v)}{\partial(x,y)}=|f'(z)|^{2}$ (٧ درجات)

(ب) ارسم مخطط بيانياً لعائلتي المنحنيات البارمتر الواحد $v(x,y)=c_2$, $u(x,y)=c_1$ لمركبتي الدالة

$f(z)=\frac{1}{z}$ (٨ درجات)

(ج) أوجد المرافق التوافقي للدالة $u=2x(1-y)$ (٥ درجات)

السؤال الثالث: أكمل (٢٠ درجة)

(i) $|z_1+z_2|\le \ldots..+\ldots..$ (٧ درجات)

(ii) $\int_{|z|=3}\frac{e^{z}}{(z+4)^{4}}dz=\ldots..$ (٥ درجات)

(iii) $\int_{|z|=1}\frac{\sin h^{2}z}{z^{2}}dz=\ldots..$ (٨ درجات)

السؤال الرابع: أكمل (٢٠ درجة)

(أ) التحويل الكسرى الذي يحول النقاط $z=\infty,1,i$ إلى $w=-1,\infty,i$ هو ..... والنقاط الثابتة هى ..

(ب) $\sin^{-1}z=\frac{1}{i}\log(iz+\ldots..)$

مع التمنيات بالنجاح

د. رمضان درويش

Mansoura University Faculty of Science Geology Department First Term Exam 12 Jan 2016		Subject: Geophysics (G402) كود المقرر (جف402) المستوى الرابع ، جيوفيزياء Course: Engineering and Marine Geophysics Time: 2 hours Full Mark: 80

هام: الإمتحان على صفحتين

A. Engineering Geophysics (40 Marks)

I) (A) Draw a sketch showing the subjects included in engineering geology (**8 marks**)

(B) Discuss the geophysical needs for engineering studies (**8 marks**)

(C) **Complete**: (**4 marks**)
1- The environmental factors affecting engineering studies include……

2- The non-uniqueness in geophysics arises from …… and ……

II) (A) Discuss the concept of engineering geophysics (**8 marks**)

(B) Write on two case studies for application of geophysics in engineering studies (**8 marks**)

(C) **Complete**: Forward modeling means……. while inverse modeling means…… (**4 marks**)

B. Marine Geophysics (40 marks)

III) Put YES or NO and correct (the underlined word) if needed: (one mark for each item)

1. A delayed effect of the shock wave is an oscillatory flow of water, which gives rise to subsequent pressure pulses designated as feathering.
2. In Maxipulse source, the mesh made by the perforations in the spherical enclosure has the effect of breaking up the bubble.
3. The bubble in Flexotir is recorded by a detecting hydrophone on the injector device for final processing.
4. The air gun is used when sharp, clean, bubble-free impulses are needed and greater source power is not as important.
5. Seismic refraction is a self-contained system for receiving sound waves in the water and transmitting them to a distant receiving point (on the ship) by radio.

6. In air gun, because the collapse of bubble is into a void, there is no gas or air to be compressed.
7. In marine magnetic surveying the sensor is towed in a 'fish' at least ~50 m behind the vessel to remove its magnetic effects.
8. Stressing hydrophone creates an e.m.f., its voltage is proportional to the velocity of the ground motion.
9. In marine gravity surveying, the ship-borne gravimeter is used where an anomaly of small extent must be mapped with high precision.
10. The fundamental frequency of reverberation is ¼ of the one-way time through the water layer.
11. The bubble-oscillation period is proportional to the depth of the bubble center.
12. Capacities of air-guns range from 1 to 5000 m^3 or more.
13. In marine shooting, an array of air guns having large capacities is fired in synchronism.
14. The stretch cable is used to depress the hydrophone cable to its operating depth and to provide isolation from the pitching and tossing motion of the ship.
15. The effects of excessive feathering upon data quality depend on the strike and thickness of the reflecting formations.
16. The compass is set for the desired depth, and a pressure gauge actuates the wings when the actual depth of the cable begins to deviate from that for which the setting was made.
17. Remote-reading birds and high-frequency acoustic signal generators are used to obtain both the shape and position of the cable relative to the ship.
18. CDP is a multiple channel and a single-fold coverage.
19. The surface layer reverberation is caused by multiple refractions (both at the source and receivers) that bounce back and forth between the top and bottom of the water layer.
20. In deep-water exploration, bottom-reference cables or cables which lie on the bottom are used.

IV) Write on these topics: (Five marks for each topic)

1. 3D marine seismic shooting during the course of field development

2. Noise dominant in marine seismic surveying

3. Feathering problem in marine seismic surveying

4. Grouping enhance the signal to noise ratio

لجنة التصحيح: أ. د. إبراهيم كرات* د. عادل كامل* أ. د. حسنى غزاله أ. د. حمدى صيصه

Mansoura University
Faculty of Science
Geology Department

جامعة المنصوره
كلية العلوم
قسم الجيولوجيا

Radiometric Summer Exam (4th level Geophysics 2015

طرق التنقيب الأشعاعيه جف ٤٠٣ (المستوى الرابع برنامج الجيوفيزياء) ٢٠١٦/١/١٦ مساءا

Answer the Following Questions (Total mark 60)

1- Compare between the following: (20 mark)

a- Cosmic and natural gamma rays b- Pair production and photoelectric effects

c- Behavior of U^{+4} and U^{+6} mineralization. d- Gamma rays and beta radiations.

e- Absolute and relative background radiations.

2- Choose Yes or No and correct the wrong: (10 mark)

a. Radon detectors based on measuring gamma radiations of Bismuth isotope.
b. In magmatic stage U and Th elements enter the formation of the rock forming minerals.
c. U radioactive series consists of ten isotopes and ended with normal Pb^{204}.
d. Gamma particles have penetrating power less than Beta rays.
e. Atoms of unstable elements usually emit radiations.
f. Palechroic halos are common in sedimentary rocks.
g. U minerals are resistant to chemical weathering and tend to concentrate in placers and black sands.
h. Th deposits occur in a variety of rock types and exhibit a wider variation than U deposits.
i. U, Th and K mineralization decreases with increasing silica continent.
j. Radiometric method is based on measurements of potential effects of three naturally occurring radioactive K, U and Th

3- State why: (10 mark)

a. Radiometric method is less ambiguous than other other geophysical methods
b. Sodium Iodide crystal is commonly used than other detectors.
c. Uranium mineralizations are widely distributed than Thorium.
d. Black shale and phosphate give high radiations.
e. Terrain clearance is common for aeroradiometric survey.

4- Discuss Two of the following: (20 mark)

a. Operation of the scintllometers.
b. Interaction of Gamma rays with matter.
c. Corrections of raddiometric data.

Best Wishes

Prof. Hosni Ghazala Prof.Adam El-Shahat Prof. Adel Genidi Dr. Ahmed ElGaladi*

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura–EGYPT

Date: Saturday, 16 January **2016**
First semester - Academic year 2015/2016
Full mark: **60**
Time allowed: 2 hrs (12.00-02.00 PM)

B.SC EXAM IN REMOTE SENSING & GIS (G405) FOURTH LEVEL GEOLOGY/GEOPHYSICS PROGRAM

Instruction: READ carefully then answer the following questions and stick to each question notification

QUESTION ONE: Fill-in the spaces with suitable word(s) (20 marks)

1- By knowing (1) and (2) we can know the flight line on an aerial photography.
2- The displacement of a position from the principle point caused by (3) can be used with (4) and (5) from the photo to calculate the scale.
3- Aerial photographs shows (6) relief displacement than satellite images because of its (7) altitude.
4- Assume that we can use our eyes to see an object at very far distance, in that case we will need longer (8) and bigger (9) .
5- Stereoscopic Parallax is caused by (10) and (11) .
6- We can differentiate between igneous rocks and sedimentary rocks remotely by knowing their (12) .
7- To create a layer representing a number of wells, you will need to create a (13) and the type of data will be (14) .
8- Basic map projection types are (15) , (16) , (17) , and (18) .
9- You need to do (19) step to change a photo to a map with a coordinate data in Arc GIS.
10- To change a projection of a map to another type, we use (20) tool.

QUESTION TWO: Mention one difference item between each of the followings (20 marks)

1. SWARM and GRACE. (22)
2. Vector and Raster. (24)

لجنة الامتحان والتصحيح*: أ.د. محمود قورة – أ.د. صلاح البيلي – أ.د. حمدي صيصه- د. لميس محمد *

3. Mie Scattering and Rayleigh scattering. **(26)**
4. Spatial and Spectral resolution. **(28)**
5. TRMM and NDVI. **(30)**
6. Scattering and Refraction. **(32)**
7. Irradiance and Exitance. **(34)**
8. Gain and Offset. **(36)**
9. Sandstone and limestone (runoff –infiltration behavior) **(38)**
10. Initial loss and recharge. **(40)**

QUESTION THREE: Put (T) or (F) and correct the wrong word(s) (20 marks)

1. The emissivity of the black body is 0. ( ) **(42)**
2. If the surface height profile is shorter than the wavelength, it will produce a mirror image. ( ) **(44)**
3. The dimension of the Hemispherical Absorption is Watts m-2. ( ) **(46)**
4. Bright areas in band 5/1 is an indication of regions rich with opaque minerals. ( ) **(48)**
5. Band 7 is sensitive to hydroxyl content. ( ) **(50)**
6. Sun- synchronous orbit is very effective in removing all the illumination differences. ( )**(52)**
7. Ascending node is the point where the satellite crosses the equator moving from N to S. ( ) **(54)**
8. NDVI is a good way to get information about change in the gravity field. ( ) **(56)**
9. Swarm mission measure the change in magnetic field using two identical satellites. ( ) **(58)**
10. The hydrogeologic group classification is depending on infiltration and evaporation. ( ) **(60)**

W. Success

Dr. Lamees M. Mohamed

* لجنة الامتحان والتصحيح*: أ.د. محمود قورة – أ.د. صلاح البيلي – أ.د. حمدي صيصه- د. لميس محمد

Mansoura University
Faculty of Science
Geology Department
Date: 23/01/2016
Time allowed: 2 hours

كلية العلوم
جامعة المنصورة

Final Exam. (Jan. 2016)
Fourth Level (Geophysics)
Subject: G409
Course: Stratigraphy of Egypt طبقات مصر
Full Mark: 60

Answer the following questions: (**20** marks for each question)

1. a. Compare between each pair of the following successions, and refer to their economic value:
1. The Carboniferous successions on both sides of the Gulf of Suez region. **(6 marks)**
2. The Jurassic succession in Northern Sinai and in the north Western Desert. **(6 marks)**

b. Mark right (√) or wrong (X) and correct the false words. **(8 marks)**
1. The Bahariya Formation is Cenomanian in age and is distributed in the Gulf of Suez region.
2. The oolitic limestone ridges are well developed along the northwestern coastal plain of Egypt and are of Cretaceous age.
3. The Paleozoic succession penetrated by drilling in the north Western Desert is subdivided by Keeley (1989) into three groups and nine formations.
4. The phosphate deposits are well developed in central Egypt and are named the Taref Formation.
5. The Oligocene Red Bed succession known from the Fayoum Province are included in the Marmarica Formation.
6. Marine Triassic exposures are known only from Gabal Araif El Naga in NE Sinai.
7. The Abu Roash Formation is mainly Turonian in age and is subdivided by the working oil companies into two members, composed essentially of carbonate rocks.
8. The Pliocene exposures along the Red Sea Coast are subdivided into the Abu Dabbab and the Shagra formations.

2. a. Illustrate the following stratigraphic successions and refer to their economic potentialities:
1. The Neogene – Quaternary deposits in the subsurface of the Nile Delta area. **(6 marks)**
2. A composite stratigraphic column for the Cretaceous - Paleogene succession in the Kharga Oasis area. **(6 marks)**

b. Complete the following sentences: **(8 marks**, 0.5 mark for each space)
1. The Lower Cretaceous fluviatile deposits exposed in the Gulf of Suez region are named the ---------- Formation which are followed by a marine unit named the ---------- Formation in Northern Sinai.
2. The Pre-Carboniferous succession penetrated by drilling in the Gulf of Suez Province is subdivided into ---------- and the ---------- rock units.
3. The ---------- Formation ranges in age between the Coniacian and the Santonian, overlying the ---------- Formation and its type locality is Wadi Matulla in west-central Sinai.
4. The Permo-Carboniferous succession exposed in the Northern Galala is known as the ---------- Formation whereas the Permo-Triassic red beds are usually referred to as the ---------- Formation.
5. In Egypt, Devonian deposits are recorded only from the Western Desert and are named the ---------- Formation in the Oweinat area and the ---------- Formation in the subsurface of Siwa area.
6. In the subsurface of the north Western Desert, the Paleocene-Middle Eocene rocks are included in a carbonate unit known as the ---------- which is overlain by a marl-shale unit of Late Eocene-Oligocene age named the ---------- Formation.
7. The global Paleocene/Eocene boundary has been defined within the upper part of the ---------- Shale at ----------, south of Luxor.
8. The Upper Cretaceous chalky deposits are named the---------- Chalk in the Sinai and the ---------- Chalk in the north Eastern Desert.

3. Write short notes on the following:
a. The Lower Cretaceous succession in the subsurface of the north Western Desert. **(6 marks)**
b. The Miocene rock stratigraphy in the Gulf of Suez Region. **(6 marks)**
c. The Mokattamian rock stratigraphy in the Greater Cairo area and the equivalent units in the Fayoum Province. **(8 marks)**

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