المستوى الرابع - جيوفيزياء - تحليل مركب ر ٤٠١

الفرقة : الرابعة الشعبة: جيوفيزيقا المادة : تحليل مركب ر401	كلية العلوم–قسم الرياضيات	دور: يناير 2013 الزمن : ساعتان التاريخ :1/1/ 2013

أجب عن الأسئلة الآتية: **الدرجة الكلية: 80 درجة**

السؤال الأول: أثبت أن (10 درجات)

i) $|z_1 + z_2| \le |z_1| + |z_2|$ (5 درجات)

ii) $\cos 3\theta = 4\cos^3\theta - 3\cos\theta$ (5 درجات)

السؤال الثاني :أدرس كل من : اتصال – اشتقاق – تحليلية – توافقية الدوال الآتية (30 درجة)

i) $f(z) = e^{\bar{z}}$ (10 درجات)

ii) $f(z) = \cos\bar{z}$ (10 درجات)

iii) $f(z) = z^n$ (10 درجات)

ملاحظة : الدالة توافقية في الإحداثيات القطبية عندما $r^2 u_{rr} + r u_r + u_{\theta\theta} = 0$

السؤال الثالث :ضع علامة صح أو خطأ أمام العبارات الآتية مع تصحيح الخطأ (20 درجة)

i) $\arg e^z = i y$ ( ) (5 درجات)

ii) $\sin\bar{z} = \overline{\sin z}$ ( ) (10 درجات)

iii) $\tanh iz = i \tan z$ ( ) (5 درجات)

انظر الخلف

السؤال الرابع : أختار الإجابة الصحيحة بين القوسين (مع الإثبات): (20 درجة)

أ) محدد جاكوبى للدالة التحليلية يعرف على الصورة (5 درجات)

$$\frac{\partial(u,v)}{\partial(x,y)} = (|f'(z)|^2 , |f(z)|)$$

ب) التحويل الكسرى الذي يحول النقاط $z = 0,1,i$ على $w = -1,0,i$ هو

$$(w = \frac{z-1}{z+1} \ , \ w = \frac{z-i}{z+i})$$ (10 درجات)

جـ) إذا كانت f(z) تحليلية والمشتقة $f'(z)$ متصلة عند جميع النقاط داخل وعلى المنحنى البسيط المغلق C فإن $(\oint_c f(z)\,dz = 0 \ , \oint_c f(z)\,dz = 2\pi i)$ (5 درجات)

مع تمنياتي بالنجاح

أ.د/ حنان السيد عوض درويش

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مع تمنياتي بالنجاح

أ.د/ حنان السيد عوض درويش

المستوى الرابع - جيوفيزياء هندسية وبحرية جف 402

Mansoura University **Faculty of Science** **Geology Department** **Second Term Exam** **5 Jan 2013**		**Subject: Geophysics (402) (كود المقرر(جف402** **Course: Engin. and Marine Geophysics** **المستوى الرابع** **Time: 2 hours** **Full Mark: 80**

هام: الإمتحان على صفحتين

A. Engineering Geophysics (40 marks)

I-i) Put YES or NO and correct (the underlined word) if needed: (one mark for each point)

1. In GPR engineering applications, the antennae frequency is lower than that used for geological applications.
2. If clays underlie a pyrite ore body the SP anomaly may be suppressed.
3. The SP tends to increase in positiveness with the direction of water flow.
4. SP can be used to ensure that reinforcement mesh has been placed at the correct level within concrete slabs.
5. Gravity can be used in the investigation of road pavements.
6. The micro-gravity surveys can be used for archaeological investigations.
7. SP measurements can be used to detect the sites of leakages associated with man-made dams.
8. In GPR geological applications, the fine resolution is less important than penetrated depth.
9. Seismic refraction can be used for detecting a collapsed doline.
10. Deposits of gravel, particularly if unsaturated, have low resistivity and have been successfully prospected for by resistivity methods.

I-ii) Complete the following: (one mark for each point)

1. …….. is useful for detecting underground water.
2. The …….. method is considered an excellent tool for detailed investigation of construction sites where massive ice is suspected.
3. …….. can be used for landfill investigations.
4. Where there is a density contrast between infill material and the surrounding rock ..... can be used to locate backfilled quarries.
5. For detecting buried faults ……, ……. and ……. are suitable.
6. In Engineering applications, the target dimension and depth are ……
7. For detecting sink holes,…… and ……. Methods are applicable.
8. Detection of buried foundations is suited by (resistivity, GPR, SP, gravity, seismic refraction) choose.
9. In engineering applications using seismic refraction methods, the length of the survey line is (10's m, 100's m, 10's km), choose.
10. Injection of water into a well will produce a (positive, negative) SP anomaly, choose.

II) Write on these topics: (Four degrees for each topic)

1. Write on one engineering application of two of these geophysical methods. (Gravity, SP, resistivity, seismic refraction)
2. An Air-filled cavity has been detected by gravity, GPR, electrical resistivity. Describe the response (or anomaly) in each case.
3. Define the rock rippability? What is the suitable geophysical method?
4. Two particular aspects of GPR make the method suited for void investigations in man-made structures. What are these aspects?

5. Write on engineering and construction applications of GPR.

B. Marine Geophysics (40 degrees)

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

1. The bubble-oscillation period is proportional to the depth of the bubble center.
2. Capacities of air-guns range from 1 to 5000m^3 or more and operate at a pressure of 2000 lb/in^2.
3. In marine shooting, an array of air-guns having small capacities are fired in synchronism.
4. The lead-in 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.
5. The marine magnetic sensor is towed behind the vessel at a distance of up to 500m, which is necessary to reduce the magnetic effects of the towing vessel.
6. The controller 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.
7. Remote-reading magnetic compasses and high-frequency acoustic signal generators are used to obtain both the shape and position of the cable relative to the ship.
8. CDP is a multiple channel and a single-fold coverage.
9. 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.
10. All marine reflection work is carried out with CDP shooting.

III-ii) Complete the following: (one mark for each point)

1. A delayed effect of the shock wave is an oscillatory flow of water, which gives rise to subsequent pressure pulses designated as .....
2. In ..... source, the mesh made by the perforations in the spherical enclosure has the effect of breaking up the bubble.
3. The bubble in ..... is recorded by a detecting hydrophone on the injector device for final processing.
4. The ..... is used when sharp, clean, bubble-free impulses are needed and greater source power is not as important.
5. ..... 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 ....., because the collapse of is into a void, there is no gas or air to be compressed.
7. The hydrophone is made of a ..... material.
8. Stressing hydrophone creates an e.m.f., its voltage is proportional to the ..... of the ground motion.
9. In marine gravity surveying, the ... is used where an anomaly of small extent must be mapped with high precision.
10. The ..... of reverberation is ¼ of the reciprocal of the one-way time through the water layer.

IV) Write on these topics: (Four marks for each point)

1. Air-gun.
2. Feathering during marine seismic surveying.
3. Noise in marine seismic surveying.
4. 3D seismic shooting using two ships.
5. Correlate between single- and multiple-channel streamer cables.

لجنة التصحيح: أ. د. إبراهيم كرات* أ. د. حسنى غزاله أ. د. حمدى صيصه د. هشام سلام

Mansoura University
Faculty of Science
Geology Department
Date: 12/01/2013

Final Exam. (Jan 2013)
Fourth Level (Geophysics Program)
Subject: G409
Course: Stratigraphy of Egypt طبقات مصر
Time allowed: 2 hours Full Mark: 60

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

1. a. Give an account on the Neogene-Quaternary subsurface succession in the Nile Delta area. (7 marks)
   b. Compare between the Carboniferous successions on both sides of the Gulf of Suez region. (6 marks)
   c. Arrange the following rock units from older to younger; mention the age and dominant lithology of each. (7 marks)
   -The Malha Formation - The Dakhla Shale - The Gharandal Group
   - The Matulla Formation - The Araif El Naga Formation.

2. a. Compare between the Jurassic successions in Northern Sinai and in the subsurface of the north Western Desert. What is the economic importance of these deposits. (13 marks)

   b. Complete the following sentences. (7 marks; one for each space)
   1. The ---------- Formation is mainly Turonian in age and is subdivided by the working oil companies into ---------- members, because of its importance for oil exploration in the north Western Desert.
   2. The ---------- Shale ranges in age between the Paleocene and the Eocene, underlying the ---------- Formation and its type locality is Gabal Awaina in the Nile Valley.
   3. The Raised Beaches and Coral Reefs are extensively developed along the ---------- Coast and are of ---------- age.
   4. The ---------- Group is an important Miocene rock unit in the Gulf of Suez region composed mainly of evaporites.

3. a. Mark right (√) or wrong (X) and correct the false words. (7 marks)
   1. The Bahariya Formation is Cenomanian in age and is widely 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 Qiseib Formation is Permo-Triassic in age, composed mainly of a red bed clastic succession and is widely distributed in the Fayoum Province.
   4. The Burg El Arab Formation is Early Carboniferous in age and is subdivided into four members of which three are payzones for oil and gas.
   5. The Abu Madi Formation is known from the subsurface of the Nile Delta area and is a manganese-producing unit.
   6. Nummulitic " *gizehensis*" limestone's are characteristic deposits for the Carboniferous of Egypt and are well developed in the Greater Cairo area.
   7. Phosphate deposits are well developed in Central Egypt, named the Duwi Formation of Miocene age.

   b. Write short notes on the Eocene rock stratigraphy in the Nile Valley. (7 marks)

   c. Compare between the Miocene rock stratigraphy along the Red Sea and the Mediterranean coastal plains.(6 marks)

Good Luck

لجنة الإمتحان والتصحيح*:
أ.د محمود قورة* أ. د. عبد الله شاهين أ.د. محمد عابد د. هشام سلام

المستوى الرابع - جيولوجيا الفصل الدراسي الرابع ج ٢٠١٣
جيوفيزياء

Mansoura University
Faculty of Science
Geology Department
Date: 15/01/2013

First Term Exam. (Jan. 2013)
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- Quaternary as geochronologic unit is epoch.
2 - The Pleistocene ended at 12 Ka BP.
3- Volcanic eruptions can cause short term cooling because of increasing of CO in the atmosphere.
4- The eccentricity is a measure of departure of the earth orbital ellipse from circularity.
5- The change of obliquity from 22.1 to 24.5 takes approximately 21 Ka years.
6- Glaciers move downhill due to internal deformation of ice and gravity.
7- The term moraine is applied to a series of formation all of which are composed of till .
8- A streamlined hills deposited in the glacial valley is kams.
9- The steric change is responsible for the greater part of sea level rise.
10- The older stage in the Quaternary of the northwestern Europe is the Saalian.
11- All modern deltas exist in similar geologic settings .
12-Processes within the drainage basin of a river determine the sediment and water supply .
13- The delta plain is subdivided into different physiographic zones.
14- The active delta plain is occupied by the functioning distributary channels.
15- In tropical conditions, evaporates and chemical precipitates form the major delta deposits.
16- The sediment yield is a function of drainage basin area and river discharge.
17- When outflow velocity is high, the deposited mouth bar is quite thick.
18- Low nearshore wave power is commonly associated with steep concave offshore.
19- The most significant influence of wind system is determining the pattern of delta switching.
20- When basin geometry consists of closed-end trough ,the sediment is deposited parallel to axis.

(20 marks)

Question Two: Complete

1- The earth،s eccentricity varies due to attraction with gravity of.....and.....
2- .....moraine covers the surface underneath the glacier.
3- .....lakes are part of outwash plain.
4- .....and..... are two landforms characterizing the permafrost area
5- Loess is Aeolian sediment consists of..... silt and.....sand with carbonates
6- A pollen association consists of.....and .....characterizes glacial stages
7- If δ O18 is ..... the sample is enriched and if it is..... .the sample is depleted relative to standard.
8- The Quaternary of low latitude areas is subdivided into.....and.....stages.
9- The Quaternary of USA system is based on.....and.....
10-The first and last glacial stages of the Alpine system are .....and.....
11-A major river system consists of .....,.....,.....and.....
12-The upper delta plain is the .....portion of the.....delta.
13-The geometry of the distributary mouth bar depends on.....,.....and.....
14-When frictional forces and buoyancy are significant ..... bar is common.
15-The seaward bifurcation channels are common in the delta with.....,.....and.....
16-Sand bodies are oriented parallel to shoreline under.....and.....
17-The morphologies of deltas are functions of.....and.....
18-The effect of tidal currents is.....mixing and.....transporting.
19-Distributary channels are normally associated with.....,.....and.....
20-According to Scott,(1969) deltas are classified into.....,.....,and.....

(20 marks)

اقلب الصفحة

Prof.O.Hegab and Prof.A.Elshahat لجنة التصحيح:

Question Three: Choose the correct answer

1- The earth,s axial tilt is
a-obliquity b-eccentricity c- precession

2- The continental glacier is
a- ice sheet b- ice shelves c- ice stream

3- Glaciers erode a terrain principally through
a-abrasion b-freezing c- thawing

4- The lamination of glacial varve is due to changes in
a- mineralogy b- texture c- fossil content

5- The high fertility of loess soil is due to
a-organic content b- porosity c-carbonate content

6-The Pingo is a periglacial structure formed on
a- tills b- active layer c- loess

7- The Late temperate zone of interglacial stage is characterized by
a- Picea b- Pinus c- Quercus

8 –The global change in sea level due to melting of ice cap is
a-eustatic b-steric c-isostatic

9- Water stored in ice sheet is
a-enriched inO18 b- depleted in O16 c- enriched inO16

10-The last interglacial stage in the Quaternary of the Midwest US system is
a- Sangamonian b- Hoxonian c- Eemian

11- A delta is generally formed when one of the following processes is prominent
a- wind regime b- river discharge c- wave activity

12-The coarsest sediments build up
a- subaerial delta plain b- mouth bar c- prodelta

13- The lunate bar is formed under the prominence of
a- inertia b- friction c-buoyancy

14- In the receiving basin that display low subsidence the produced deltaic sediments are
a- thick b- various c- thin

15-Modern day example of a delta basin in the form of closed-end narrow trough is
a-Strait of Malacca b- Persian Gulf c- Niger river

16- A small delta is occupying the interdistributary bay of the delta which is
a- river dominated b- wave dominared c- tide dominated

17- When wave energy and long shore currents are dominant , the produced delta is
a- elongate b-lobate c- cuspate

18- In the tide dominating delta the sand of the distributary channel is
a- bidirectional C.B b- herring bone C.B c- unidirectional C.B

19- The area south of the Manzala lagoon is covered by
a- hypersaline flat b- wetland c- sand dunes

20- The surface of Nile Delta front is
a- smooth b-scarped c- zigzagged

(20 marks)

Good Luck

Prof. Omar Hegab

المستوى الرابع - جيوفيزياء - طرق التنقيب الإشعاعي جف ٤٠٣

Mansoura University
Faculty of Science
Geology Department

جامعة المنصوره
كلية العلوم
قسم الجيولوجيا

Radiometric Final Exam (4th level Geophysics) 2012/2013

طرق التنقيب الأشعاعيه جف ٤٠٣ (المستوى الرابع برنامج الجيوفيزياء) ٢٢ /١/ ٢٠١٣ مساءا

Answer the Following Questions (Total mark 60)

1- Complete the following: (20 mark)

a. Cosmic rays background ----------with elevation and ----------with latitudes

b. Cosmic rays are ---------- source of radiations

c. U^{238} radioactive series consists of ----------isotopes

d. Geiger Muller measures ----------radiation

e. NaI crystal is characterized by ----------, ----------, and ----------

f. Radiation effects on rocks and minerals depend on ----------, ----------, and ----------

g. Absolute background is usually ---------- than relative background

h. Spectrometer measures ---------- and ---------- of the gamma rays

i. Thorium is not acceptable to ----------under most supergene conditions

j. U and Th occur in the ----------magma as the U^4 and Th^4 ions and tend to become concentrated in the ----------fluids.

2- Mention the reasons for Three of the following: (20 mark)

a. Lead shielding is important for radiometric surveys.

b. Radiometric method based on gamma ray measurements.

c. Radiometric data is less ambiguous than other geophysical methods.

d. Uranium mineralization is wider than thorium.

e. Radon detector is of great importance.

3- Write one of the Following: (20 mark)

a. Corrections of gamma rays survey

b. Calibration and calibration pads.

c. Source of errors in radiometric surveys.

d. Spectrometers

Best Wishes

*Prof. Hosni Ghazala**

Prof. Dr. Adel Genidi
Prof.Dr. Hosni Hamama
Dr. Adel Kamel Tark Awan