المستوى الثاني - جيولوجيا - جـ ٢٠١ أصاغر لافقاريات كبيرة

Mansoura University
Faculty of Science
Geology Department
Date: 21/1/2014

كلية العلوم
جامعة المنصورة

First Term Exam (January 2014)
Second Level (Geology Program)
Geology ( Geo 201)
Course: Invertebrate Macro paleontology
Time: 2 hours Full Mark: 60

Answer the following questions:-

(وضح إجابتك بالرسم كلما أمكن ذلك)

**Question One: Compare between the following:** **(12 Marks)**

a- Articulate and Inarticulate brachiopods. (6 Marks)

b- Bivalves and Brachiopod shells. (6 Marks)

**Question Two: Write short notes on the following:-** **(20 Marks)**

a- Orientation of a bivalve shell. (5 Marks)

b- Dentition (teeth) in bivalves. (5 Marks)

c- Adductor muscles in bivalves. (5 Marks)

d- Graptolites. (5 Marks)

**Question Three: Define the following:** **(10 Marks)**

a- The Pallial sinus in bivalves. (5 Marks)

b- The littoral zone. (5 Marks)

**Question Four:** **(18 Marks)**

a- Mention and draw 6 index fossils and their ages. (6 Marks)

b- Write on the importance of coral reefs in paleoecology. (6 Marks)

c- Classification of Phylum Porifera. (6 Marks)

لجنة الإمتحان والتصحيح*:

أ.د. محمد محمود منصور عابد* أ.د. محمود قورة أ.د. حسنى حمدان

ج ٢ جيولوجيا
ج ٢٠٠ جيوفيزياء

Mansoura University
Faculty of Science
Geology Department

Final Theoritical Exam.
1st Term 2013-2014

Date: 14 / 01 / 2014
Time Allowed: Two Hours
Full Mark: 60 Marks

نظام :-- الساعات المعتمدة  الفرقة :-- المستوي الثاني  برنامج :-- الجيولوجيا / الجيوفيزياء

الورقة الامتحانية :-- ج ٢٠٢  المقرر:-- بصريات المعادن والمعادن المكونة للصخور

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Optical Mineralogy + Rock-Forming Minerals

Answer Three Questions only from the Followings:- ( 20 Marks for each question )

1- A- Define the following Terms :- ( 10 Marks – 2 Marks for each part )

i- Birefringence ii- Colour iii- Relief iv- Becke line v- Double Refraction

1-B- Mention the Requirements for the followings :- ( 10 Marks )

i- Measuring Extinction Angle. (4 Marks) ii- Determination of Pleochroism. (3 Marks)

iii- Defiition of Order of Interference Colours. ( 3 Marks )

2-A- What are the Factors affecting on the followings :- ( 8 Marks - 4 Marks for each part)

i- Refractive Index. ii- Interference Colours.

2-B- Mention the Optical Classification of Minerals. ( 4 Marks )

2-C- What is the Interpretation of the followings :- ( 8 Marks - 4 Marks for each part)

i- The Appearance of Becke Line. ii- Twinkling.

3- Draw in detail the followings :- ( 20 Marks )

A- Total Reflection and Critical Angle. (5 Marks) B- Polarization of Light. (10 Marks)

C- Extinction Types. ( 5 Marks )

4- Write short notes on the followings :- ( 20 Marks - 5 Marks for each part )

i- Immersion Method ii- Pleochroism iii- Interference Colours iv- Extinction

GOOD LUCK & BEST WISHES

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لجنة التصحيح :- أ.د. حسني حمدان - د. شعبان مشعل* لبرنمج الجيولوجيا

أ.د. عمر حجاب - د. شعبان مشعل* لبرنامج الجيوفيزياء

| Mansoura University<br>Faculty of Science<br>Physics Department | Geophysics, 2nd Level | First Term, 2013-2014<br>January, 2014<br>Time: 2 hours. |
|---|---|---|

Waves &Vibrations, (Ph. 229) Full Mark: 60 Marks

**Answer the following Questions:**

| | | |
|---|---|---|
| 1.a) | Define the following: Periodic time, angular velocity, amplitude and the frequency of a circular motion. | 5 |
| b) | What is the difference between the real and the ideal simple harmonic motion? | 5 |
| c) | Study the forced oscillations. | 5 |
| 2.a) | Study the energy of simple harmonic oscillations in an electrical system. | 5 |
| b) | 30 forks are arranged according to their frequencies. Every two successive forks makes 4 beats in one second. If the last fork has a frequency double the first one, find the frequencies of all the forks. | 5 |
| c) | A copper wire fixed at both ends and a bridge is placed at its middle. It is found that there are 4 beats when the tension was 80N to vibrate its two parts. Calculate the number of beats when the tension is 110 N. | 5 |
| 3.a) | Study the coupled oscillations in case of mono atoms system. | 5 |
| b) | Find the wavelength and the velocity of the two dimensions wave given by: $\varphi = 10 \sin (3x+4y- 5t)$. | 5 |
| c) | A spring is hanged vertically from its upper end. Its lower end is connected by a mass of 10 kg. Then it is pulled down a distance of 4 cm from its steady state position, if the spring constant = 1000N/ m. study its motion. | 5 |
| 4.a) | Study the superposition of two perpendicular simple harmonic vibrations. | 5 |
| b) | Find the velocity of propagation of waves in a string if the mass per unit length is 9 gm/cm and the tension is $9x1o^4$ dyne. | 5 |
| c) | Study the stationary waves. | 5 |

With our best wishes, Dr safaa abdel-maksoud & Prof.Dr Emad Khedr

٢ جيوفيزياء . تيار متردد ودوائر كهربية ف ٢٠٢٨

| | | |
|---|---|---|
| Mansoura University<br>Faculty of Science<br>Physics Department<br>Subject: Physics | | 1st Term<br>Second Year :Geophysics<br>Date : January 2014<br>Time allowed : 2 hours |
| Alternating current and electric circuit | | Full Mark:: 60 Mark |

Answer **All** Questions

**[1] a- Define each of the following:**

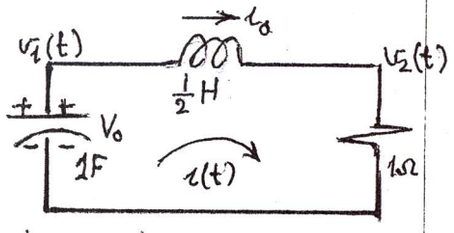
1. **The cut-off frequency,**
2. **The resonant frequency and,**
3. **Quality factor of a filter.**

**b- Sketch Bode-plot for the given transfer function :**

$$H(S)=\frac{1000S}{S^2+110S+1000}$$

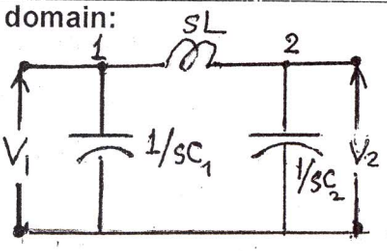
**[2] For the zero input circuit shown with initial conditions(I.C.) $i_o$=1A, $v_o$=1V**

**a- Draw the transformed circuit in frequency domain and find I(S).**
**b- Determine *i*(t)**
**c- Determine $v_2$ (t)**

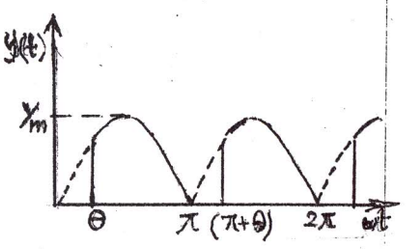



**[3] For the given transformed circuit in frequency domain:**

**a- Find [Y] parameters and [Z] parameters**




**b- A delayed full wave rectified sine wave has an average value of 1/2 $Y_m$ , Find the angle θ.**




Examiners:

1- Dr. Aziza Atta Abd El-Aziz

2-Prof.Dr. Ahmed Hamza Oraby

المستوى الثاني - جيوفيزياء - رياضة بحتة / ٢٠٦

| | | |
|---|---|---|
| جامعة المنصورة<br>كلية العلوم<br>قسم الرياضيات<br>المستوى الثاني شعبة " جيوفيزيقا "<br>رياضيات بحتة (ر206) | كلية العلوم- قسم الرياضيات | الاختبار النهائي<br>الفصل الدراسي الأول<br>يناير 2014<br>الزمن ساعتان<br>التاريخ: 4/1/2014 |

اجب عما يلي: ( الدرجة الكلية 80 درجة)

.....

1-ا- اثبت ان التكامل $\oint_c y\,dx + x\,dy = 0$ حيث c هي الدائرة $x^2 + y^2 = 4$. (10 درجات)

ب- اذا كانت $z = (x^3 + y^3)/(x-y)$ اثبت ان $x z_x + y z_y = 2z$ . (10 درجات)

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2-ا- اوجد المشتقات الجزئية الاولى للدالة $f(x,y) = (x \sin xy)^{1/2}$ . (10 درجات )

ب- احسب التكامل $\iint_R \sin y^2\,dA$ حيث R هي المنطقة المحددة $x=0,\ x=1,\ y=x,\ y=1$ (10 درجات)

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3 –ا- استخدم نظرية جرين لايجاد قيمة التكامل $\oint_c (5x^3 - y^3)\,dx + (x^3 + 3y^3)\,dy$ حيث هي

$C: x^2 + y^2 = 1$ (10 درجات )

ب- اوجد ابعاد متوازي مستطيلات له اكبر حجم ممكن بحيث تقع ثلاثة من اوجهه على مستوى الاحداثيات الثلاثة واحدى رؤوسه واقعة في المستوى $(x/a) + (y/b) + (z/c) = 1,\ a,b,c>0$

ثم اوجد حجمه . (10 درجات)

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4-ا-حل المعادلات التفاضلية :

a- $(3x + 2y^3)\,dx + (6y^2 + y^3)\,dy = 0$

b- $(x^2+1)dy + (y^2+1)dx = 0$

c- $dy/dx + (2/x)y = 4x^3$ ( 15 درجة )

ب-اذا كانت $f(x,y) = (x^2 - y^2)/(x^2 + y^2)$ اوجد نهاية الدالة ان وجدت عندما $(x,y) \to (0,0)$. (5درجات)

*مع اطيب التمنيات بالتوفيق* *د. عديله عثمان*

المستوى الثاني - جيوفيزيا - مقدمة في الجيوفيزياء - جف ٢٠١

Mansoura University
Faculty of Science
Geology Department

First Term Exam (Dec., 2013)
Second year (Geophysics)
Course: GF-201
Time: 3 hours Full Mark: 60%

## Answer the following questions:

**Q1: Define: (10 marks: 1 for each)**

1- Gravitational potential:
2- Diamagnetic magnetic materials
3- Non-uniqueness in geophysical data :
4- Remanent magnetization (RM)
5- Absolute gravity:
6- Inclination
7- Relative gravity:
8- Resolution of geophysical data:
9- Resistivity:
10- Residual gravity anomalies:

**Q 2: Complete the following: (10 marks: 1/2 for each completion)**

1- The value of inclination at the magnetic equator is equal to ..... and the magnetic field is directed .....
2- The main physical property in electric prospecting is the ..... while the main physical property in seismic prospecting is the..... .
3- Dry sand has a Resistivity values .....than clay.
4- Igneous rocks always have ..... density than sedimentary rocks.
5- Free Air correction ($C_F$) = ..... while Free air anomaly ( $\Delta g_F$ ) = .....
6- Depth rule for buried sphere $z$ =.....
7- In gravity anomaly map regional trends appears as a.....
8- To remove random noises from magnetic anomaly map in frequency domain, we often apply..... filter.
9- Gravity methods measure the .....contrast while magnetic methods measure the contrast in .....
10- ( $\Delta g_F$ ) = .....
11- Approximate Gravity anomaly for horizontal slab $z$ =.....
12- To remove regional trends from gravity anomaly map in frequency domain, we often apply..... filter.
13- $k_{SI}$ = ..... $k_{cgs}$
14- Reduction to Pole process is used to remove the effects of ..... and ..... from magnetic data.
15- Ferruginous sandstone ..... the underline magnetic anomalies of basement rocks.

**Q3:**

**Mark (T) for the true sentences or (F) for the false sentences. (15 marks: 1 for each)**

1- Magnetization of a magnetic material is a vector sum of Induced and remnant magnetization. ( )
2- The Earth's magnetic field is much smaller than the anomalous magnetic field. ( )
3- Daily magnetic variation is due to variations in the Earth's main magnetic field. ( )
4- Resolution is determined by the wavelength of the signal. ( )
5- Noise prevents recovery of high amplitude signal. ( )
6- 1 gu = 0.1 mgal = $10^{-6}$ m/s$^2$. ( )

PTO ===>

لجنة الإمتحان والتصحيح*:

أ.د. إبراهيم كرات د. أحمد الجلادي* د. محمد عوض

7- Station spacing should be smaller than the depth of the body of interest ( )
8- Latitude correction is greatest at mid-latitudes. ( )
9- Gravitational potential is due to dipole effect while magnetic potential is due to monopole ( )
10- g is a scalar field while U is a vector. ( )
11- Free-air anomaly map is similar to topography. ( )
12- Derivative filters are used to enhance regional anomalies. ( )
13- Magnetic sensor should be less than 1 meter height from ground, else soil variations might dominate the signal. ( )
14- The induced magnetization is parallel and proportional to **H**. ( )
15- Second vertical derivative emphasizes boundaries of target zones. ( )

**Q4: Write short notes on the following: : (12 marks: 3 for each)**

1- Density Variations of Earth Materials
2- Ferromagnetic Magnetic Materials:
3- Concept of hysteresis
4- Flux Gate Magnetometer

**Q5:**

a. Discuss the effects of shape and rotation of the Earth on the gravitational acceleration and mention how you can correct the gravity value from these effects. **(5 marks)**
b. Explain with drawing the magnetic anomaly of a magnetized sphere found in:
   i. The northern pole. **(4 marks)**
   ii. The mid-latitude of northern hemisphere. **(4 marks)**

**Best Wishes:**

**Dr. Ahmed ElGalladi**

المستوى الثانى - جيولوجيا جيوفيزياء - علم الصخور ج.٢

Mansoura University
Faculty of Science
Geology Department

Date: 23-12-2013
Time : 2h

First Term Exam (January 2014)
Second Level (Geol.&geophys. Program)
Subject: G-203 (Petrology)
Total Mark: 60

## Sedimentary Rocks

**Answer only Three questions:**

**Question One: Complete the following:** (20 Degree)

1- ..... means breakdown of rocks into different particles.
2- Loose grains are called ....., while compacted grains during burial are called .....
3- Sedimentary rocks genetically classified into ..... and .....
4- Sedimentary rocks form .....% of total lithosphere and form .....% of earth surface.
5- ..... and ..... are physical and chemical changes that happened to sediments after deposition.
6- ..... deals with shape, size and arrangement of the mineral grains in the rock.
7- ..... and ..... are the main methods of mechanical analyses.
8- Sediment texture is determined by ..... , ..... and .....
9- Wentworth scale of grain size classified sediments into ..... , ..... , ..... and .....
10- Aspects of grain morphology include ..... , ..... and .....

**Question Two: Complete the following:** (20 Degree)

1- Pure chemical carbonates such as ..... , ..... and .....
2- Allochtonous limestones are classified into ..... , ..... and .....
3- ..... is a rock contains 80% carbonates, while ..... is a post depositional products.
4- According to matrix sandstone can be classified into ..... , ..... and .....
5- According to mineral components sandstone can be classified into ..... , ..... and .....
6- When shale or siltstone show higher degree of induration it named as .....
7- Fissile or laminated claystone is called ....., while ..... is a pure organic mudrock.
8- Hydrous al-silicates are called ..... Less than ..... mm.
9- Conglomerates can be classified genetically into ..... , ..... and .....
10- Cataclastic breccias such as ..... and .....

## Igneous and Metamorphic Rocks

**Question Three: Complete the following :** (20 Degree)

1- According to texture igneous rocks can classified into ..... , ..... and .....
2- According to the agent of metamorphism metamorphic rocks are divided into ....., ..... and ... .....
3- ..... and ..... are textures characterized volcanic igneous rocks.
4- The sequence of minerals in the discontinuous reaction series includes ....., ....., ....., .....
5- The main stage of crystallization of igneous rocks begin with ..... and ending by .....
6- ..... is a dynamically metamorphosed rock while ..... and ..... are contact metamorphic rocks.
7- ..... and ..... are non-oriented metamorphic rocks.
8- ..... , ..... , ..... are metamorphic rocks show foliation, lineation and banding.
9- ..... and ..... are minerals indicate low grade metamorphism.
10- ..... , ..... and ..... are changes happened in the rock due to metamorphism.

**Question Four: Give a suitable name for these rocks:** (20 Degree)

1- Fine grained igneous rock composed of quartz, potash feldspar and mica.
2- Thermally metamorphosed fine clay materials and non-foliated.
3- Coarse grained igneous rock formed of olivine, pyroxene and plagioclase feldspar.
4- Tuffs or shales suffered low grade regional metamorphism consists of chlorite, mica,quartz.
5- Igneous rock suffered high grade metamorphism consists of quartz, feldspar, mica, amphibole, pyroxene.
6- Thermally metamorphosed rocks have mosaic texture formed of calcite.
7- Igneous rock coarse grained consists from potash feldspar and amphiboles.
8- Impure carbonates formed in situe by capillary action in deserts.
9- Fresh water carbonate formed in situe around springs.
10- Highly calcareous porous silts immature formed by the action of wind on river flood plains.

Exam Committee: *Prof. Dr. Amin Gheith* Dr. Hamdy Serag Dr. Waleed Shukri*