المستوى الثاني - جيوفيزياء - علم الصخور ج ٢٠١٢

Mansoura University
Faculty of Science
Geology Department

Date: 26-12-2012
Time : 2h

First Term Exam (January 2013)
Second Level (Geophysic)
Subject: G-203 (Petrology)
Total Marks: 60

Answer the following questions:

Question One: Complete the following : 20 marks

_ ...(1).... deals with manner of arrangement of the grains.
_ Fine sediments are analyzed mechanically by ...(2)... method.
_ ...(3)... means physical changes that happend to sediment after precipitation.
_ Coarse sediments have higher ...(4)... than fine sediments.
_...(5)... deals with passage of fluids through rocks.
_ Sediments with no mud, good sorting and rounded grains are described as...(6)...
_ ...(7). , ...(8)... minerals produced by evaporation of sea waters.
_ ...(9)... minerals produced by strong chemical weathering of igneous rocks.
_ ...(10)... are accessory minerals in the parent rock surviving destruction.

Question Two: Mention only the rock name: 20 marks

(1) Genetic classification of conglomerates and breccias .
(2) Classification of sandstone according the mineral components.
(3) Classification of the fresh water carbonates.
(4) Classification of sandstones according to the matrix.
(5) Classification of marine limestones.

Question Three: Answer only Five from the following: 20 marks

(1)Classification of igneous rocks according to occurrence and chemical composition?
(2)Separation of minerals from magma according to Bown's reaction series ?
(3)Minerals forming igneous rocks?
(4)Classification of metamorphic rocks according to agent of metamorphism with examples?
(5)Classify the oriented metamorphic rocks with examples?
(6)Examples of non-oriented metamorphic rocks?
(7)Minerals points to grade of metamorphism?

With Our Best Wishes

Exam Committee:*
Prof. Dr. Amin Gheith ***Prof.Dr. Abdelkader zalata***

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Wednesday, 02 January **2013**
First semester –Academic Year 2012/2013
Full Mark: 60
Time allowed: 2 Hours- (*09.00-11.00 AM reading time*)

B. Sc. Exam in GPHY-201 (Geophysics) for 2nd Level (Geophysics "Credit Hours Board)

GPHY-201 (Relating to material taught by Prof. Dr. Mohamed Refaat Sherif)

*Instruction: Answer **all questions** from Q1 (A and B), Q2 (A and B), and Q3 (A and B).*
In your answers use labeled diagrams and provide specific, named examples wherever possible. No aids allowed.

Q1: **(20 Marks)**

Q1-A: Match between A and B **(12 Marks)**

Theme		Option	
1	The velocity increases when the waves	A	Being negative and the lower is positive.
2	Most magnetic surveys are designed to detect	B	Causative properties, form, dimension in it.
3	Depths to refraction and reflection surface can be determined from	C	A variety of geological process and rock deformation.
4	The telluric current method uses	D	Pass in ancient ages.
5	The various techniques of geophysical prospecting are based on	E	One neglecting the distance in calculating the depth
6	Traps that cause the local accumulation of oil are result of	F	Is sea level.
7	Spread of waves in L.V.L affected with	G	For determining the basement relief
8	The datum plane of gravity method	H	Natural earth current
9	The denser rock has greater	I	Number of fundamental principles of physics
10	In self potential prospecting method the upper end of ore	J	Difference time and distance between exploration and detectors
11	In seismic refraction, at time intercept of travel time curve	K	Magnetic minerals directly
12	The magnetic method is the best method of geophysical tools	L	Gravitational attraction

Q1-B: BRIEFLY explain on **FOUR** of the following: **(8 Marks)**

1) In high places upon sea level, free-air correction adds to reading instrument.
2) Spread of waves in low velocity layer is affected by the materials are fill their pores.
3) As far as structural position is concentrates, the velocity of longitudinal waves to be larger.
4) The magnetic method is the best method of geophysical tools for determining the basement relief.
5) Telluric current is used to detect sedimentary basins.

Q2: **(20 Marks)**

Q2-A: Compare between **FOUR** of the following: **(8 Marks)**

1) Telluric current and self-potential current.
2) Aeromagnetic survey and ground magnetic survey.
3) Seismogram from earthquake and seismogram from nuclear explosion.
4) Gravity field and magnetic field.
5) Porosity and depth in factors controlling seismic wave's velocity of formation.

Q2-B: Answer Yes or No **(12 Marks)**

1) Low velocity layer is considered consolidate bed.
2) In geophysical dynamic method, the field measured varies with time.
3) Diamagnetic group has positive susceptibility.
4) Geophysical prospecting is the searching for unconcealed ores.
5) Reservoir rocks usually are impervious rock.
6) The relation between time and distance in seismic reflection is equation of first order.
7) In level velocity low, all computation for depth and reflection times is referred to the bottom surface of it.
8) In Schlumberger's method of electrical resistivity survey, the distance between electrodes is equal.
9) Serpentine, granite, gneiss and gabbro are considered as ferromagnetic groups.
10) For most materials rigidity is numerically about half as great as Young's modulus.
11) The earth is elliptical, so the gravity varies at polar and equatorial axis
12) In seismic method time and depth are quantities which are calculated.

Q3: **(20 Marks)**

Q3-A: Complete the following **(12 Marks)**

1) Any station of earthquake contain..... units of seismogram.
2) Diurnal and normal corrections are form kinds of correction of ..... methods.
3) In static method of geophysics, their field don't ..... with time.
4) Low velocity layer is often ..... in character.
5) The instrumental readings of gravity and magnetic as made in the field require a correction for the ..... of instrument.
6) From difference in time between P wave and S wave, it can be determine the .....
7) Bouguer correction is always ..... in sign to free-air correction.
8) As far as structural position is concentrates, the velocity of longitudinal waves found to be.....
9) The radioactivity of rock is naturally dependent upon the amount of Uranium and Thorium and their..... product.
10) The magnetic field is affected by any variation of the distribution of ..... rocks.
11) The self-potential exploration method is considered as ..... current method.
12) Seismic prospecting methods are based on the measurement of travel..... of artificial elastic wave.

Q3-A: Answer BRIEFLY on **FOUR** of the following: **(8 Marks)**

1) Concepts and specification of magnetic field.
2) Electrical prospecting methods and its application.
3) Density determination.
4) Interpretation of gravity methods.
5) Determine faults by seismic refraction and reflection method.

BEST WISHES

المستوى الثاني - جيولوجيا
جيوفيزياء - جيولوجيا تركيبية ج. ٢٠٤

Mansoura University
Faculty of Science
Geology Department
Date: 30 /12 /2012

First Term Exam (January 2013)
Geology and Geophysics : Second level
Subject: G 204   Structural Geology
Time: 2 hours   Full Mark: 60

Answer the following questions *(20 Marks per question)*

Question 1 **Define the following:**

i. Growth fault.
ii. Stress ellipsoid orientation on the basis of slickenside lineation.
iii. Heave, throw and vertical separation of a fault.
iv. Co-axial and non-coaxial deformation.

Question 2 **Write short notes on :**

i. Classification of folds.
ii. Fault termination on the horizons and at depths.
iii. Classification of faults.
iv. Role of the internal friction and pore space water saturation on the mechanical behavior of a rock.

Question 3 **Complete the following:**

i. The oldest rocks occur at the core of the …(1) …
ii. …(2).. are formed during the rock formation by constructive agents.
iii. Heim's rule assumed that, the earth's crust occurs under …(3)…
iv. The hanging wall move …(4)...or …(5)… if the maximum stress axis is horizontal.
v. Homogeneous strain deformation means …(6)…
vi. … (7) ... axis is horizontal in the dip-slip fault tectonics.
vii. Water saturation… (8)... the elastic potential of the rocks and makes Mohr's circle to …(9)…
viii.… (10)… increase the ability of mass to slide over the fault plane, however …(11)…. increase the internal while the balance is reached at a …(12)….
ix. Repetition of stratigraphic beds indicates either …(13) …or …(14)... While missing of beds indicates …(15)….
x. Crustal scale folds are known as …(16).. or …(17) …
xi. The fold is constituted of …(18)…, …(19)… and … (20)…

د. فريد مكروم*   أ.د/ عبد الحميد أحمد طه

المستوى الثاني - جيوفيزياء / ٢٠٦ ر
رياضيات بحتة

المستوى: الثاني البرنامج : جيوفيزياء المقرر : رياضة بحته ر ٢٠٦	كلية العلوم – قسم الرياضيات	دور يناير ٢٠١٣ الزمن: ساعتان التاريخ : ٢٠١٣/١/٩

أجب عن الأسئلة الآتية: **الدرجة الكلية ٨٠ درجة**

كل سؤال ٢٠ درجة

[1] أوجد الحل العام لكل من المعادلتين التفاضليتين

a) $(x-1)(x-2)(x+3)dy = \dfrac{1+y^2}{\tan^{-1} y}\,dx$

b) $\dfrac{dy}{dx} = \dfrac{4x-y+7}{2x+y-1}$

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[2] أ) أوجد الحل الخاص للمعادلة

$$(2x\cos y + 3x^2 y)\,dx + (x^3 - x^2 \sin y - y)dx \ , \ y(0) = 2$$

ب) أدرس اتصال الدالة الآتية عند النقطة $(0,0)$

$$f(x,y) = \begin{cases} \dfrac{2xy}{x^2+y^2} & , \ (x,y) \neq (0,0) \\ 0 & , \ (x,y) = (0,0) \end{cases}$$

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[3] أ) باستخدام نظرية أويلر للدوال المتجانسة أثبت أنه إذا كانت $f(x,y) = \ln(x^3 y^2)$ فإن

$$x f_x + y f_y = 5$$

ب) أوجد الحجم أعلى المستوى xy والمحصور بين المجسم المكافيء $z = x^2 + y^2$

والأسطوانة الدائرية القائمة $x^2 + y^2 = a^2$ موضحا ذلك على الرسم.

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[4] حقق نظرية جرين في المستوى للتكامل $\oint_c (2xy - x^2)dx + (x + y^2)dy$ حيث c هو

المنحنى المغلق للمنطقة المحدد بالمنحنيات $x = y^2$, $y = x^2$ وضح ذلك بالرسم.

مع أطيب التمنيات بالنجاح **د/ محاسن موسى**

المستوى الثانى - فيزياء - تيار متردد ودوائر كهربية فى

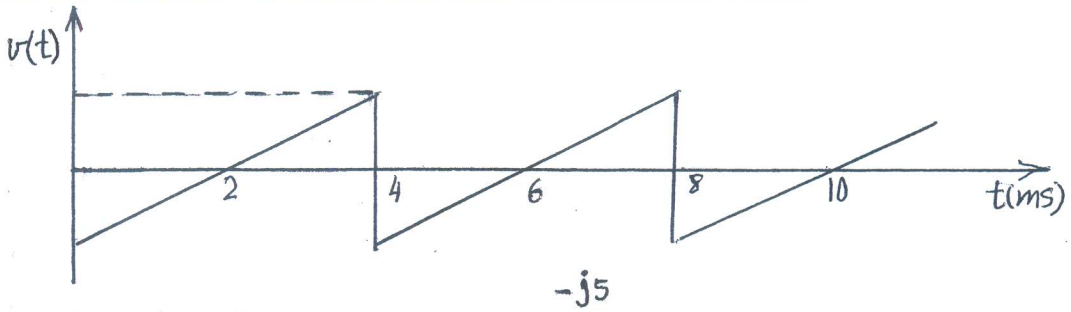
Mansoura University
Faculty of Science
Physics Department

1st term Exam. 2013
2nd level phys.228
A.C and electric circuits

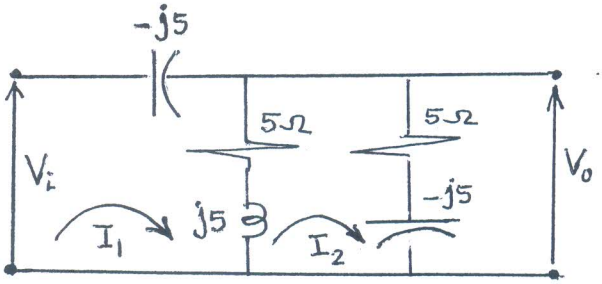
Answer the following questions — Allowed time 2h

1-a) For the given voltage waveform , Calculate its rms value

b) Sketch the current waveform and find its maximum value



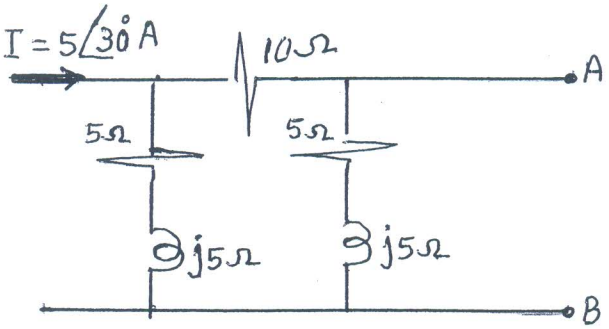
2-a) For the selected mesh currents in the network Shown in Fig. Determine the voltage transfer function V_o/V_i



b) Determine the total power dissipated in the circuit if $V_i = 30\angle 0^\circ$

3- a) Define the half power frequencies and the resonant frequency ,then derive a relation between them

b) The network shown in Fig. , contains a current source $I = 5\angle 30^\circ$. Find the Thevenin equivalent circuit At the terminals A , B



لجنة التصحيح :

د. عزيزه عطا
ا.د أحمد حمزه عرابى
ا.د أحمد الحرايقى
ا.د إيمان صبيحه

المستوى الثانى - جيوفيزياء - موضوع ف ٢٠١٢

Mansoura University Faculty of Science Physics Department	Specialization: Geo - physics Year: 2ed level	1st Semester, 2012-2013 Jan., 2013 Time: 2 Hours

Subject: Waves &Vibrations

Final examination

(Full mark: 60 degrees)

Answer the Following Questions:		*Mark*
1. a)	**Two frocks having 5&5.3 meter as wavelengths. Find the number of beats when they vibrate together if the velocity of sound in air is 330 m/s.**	*7marks*
b)	**Find the normal mode of oscillation for a string fixed at both ends.**	*8 marks*
2. a)	**Deduce the resultant of two simple harmonic vibrations in one dimension having the same amplitudes and different frequencies.**	*8 marks*
b)	**Study the reflection and transmission energy of transverse wave motion.**	*7 marks*
3. a)	**Find the wavelength and the velocity of the two dimensions wave equation given by:** $\varphi=50 \sin (5x + 5y - 100t)$	*8 marks*
b)	**Study the stationary waves.**	*7marks*
4. a)	**Find the velocity of propagation of waves in string, if the linear density is 9 gm/cm and tension 2500dyne.**	*7marks*
b)	**Study the critical damped simple harmonic motion in an electrical circuit.**	*7marks*

With our Best wishes

Examiners: *Dr. Safaa Abdelmaksoud, Prof.Dr .M.*Shaker , *Prof. Dr. M. Ismaeel& Prof. Dr.I.Fouda.*

أجب عن سؤال واحد من السؤالين التاليين (اختياري):

السؤال الثالث: **(١٥ درجة)**

ضع علامة (✓) أو (x) مع تصويب الخطأ:

١- تتميز البلورة أحادية المحور الموجبة بأن فيها $n_E > n_O$ بينما السالبة فيها $n_O > n_E$. ( )
٢- في البلورات الأيزوتروبية تظهر البلورة أكثر من لون إذا تغير وضعها فيما يسمى بخاصية التغير اللوني. ( )
٣- تتميز المعادن ثنائية المحور بان لها معاملي انكسار. ( )
٤- فى مجسم معاملات الانكسار ثنائى المحور، يعرف المحور المتعامد على المستوى المحوري البصري (أى المحور Y) باسم العمود البصري. ( )
٥- الكالسيت والمعادن غير الأيزوتروبية لها بناء ذرى يسمح للضوء المار فيه أن يتخذ طريقين، أحدهما طريق سهل (سرعة أكبر للضوء) والآخر طريق صعب (سرعة أقل للضوء). ( )
٦- تكون البلورات ثنائية المحور موجبة إذا كان معامل انكسارها الأصغر (نس) هو منصف الزاوية الحادة، وتكون سالبة إذا كان معامل انكسارها الأكبر (نع) هو منصف الزاوية الحادة. ( )
٧- تسمى شريحة الميكا باللون الحساس لأن لون تداخلها يتغير بسهولة إلى اللون الأصفر (أقل فى الرتبة) أو الأزرق (أعلى فى الرتبة) مع نقص أو زيادة السمك. ( )
٨- تعرف زاوية الانطفاء بأنها الزاوية المحصورة بين أى اتجاه بصري (في وضع الانطفاء) وآخر بلوري في مقطع المعدن. ( )

السؤال الرابع: **(١٥ درجة)**

١- متى يظهر مقطع المعدن أيزوتروبى؟
٢- كيف يتم التعرف على نوع الذبذبة فى المعدن؟
٣- ما هى أهمية دراسة مجسم معاملات الانكسار؟
٤- ما هى الزاوية الحرجة وما هو الانعكاس الكلى؟
٥- تكلم عن التوجيه البصري لبلورات الميل الواحد.

With best wishes
Dr. Tarek Anan