Mansoura University
Faculty of Science
Geology Department
Date: 23/12/2013

First Term Exam (January 2014)
3rd level (Geology Program)
Subject: G302
Course: Groundwater and Geomorphology
Time: 2 hour Full Mark: 60 Marks

Answer Three Questions Only

Q1: Define and Explain: **(20 Marks)**

a) Water Table. (5 Marks)
b) Salinity Content. (5 Marks)
c) Porosity. (5 Marks)
d) Permeability. (5 Marks)

Q2: Write briefly on the following subjects: **(20 Marks)**

a) Types of groundwater reserviors. (10 Marks)
b) The hydrologic Cycle. (10 Marks)

Q3: Compare between: **(20 Marks)**

a) Influent and effluent streams. (5 Marks)
b) confined and non-confiend aquifers. (5 Marks)
c) Recharge and discharge areas. (5 Marks)
d) Perched and Connat water. (5 Marks)

Q4: Write short notes on the following: **(20 Marks)**

a) The factors controlling the type and rate of weathering. (10 Marks)
b) Relief of the first order. (10 Marks)

لجنة الإمتحان والتصحيح*:
أ.د. محمود قورة د.شعبان مشعل د.أحمد البلادي د.حمدي سراج الدين*

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Thursday, 26 December **2013**
First semester –Academic Year 2013/2014
Full Mark: 60
Time allowed: **2** Hours- (*12.00-02.00 PM reading time*)

B. Sc. Exam in GPHY 301 (General Geophysics) for 3rd Year (Geology Program) "Credit Hours Board"

GPHY 301 (Relating to material taught by Dr. Mohammed Awad Ahmed)

*Instruction: Answer **all the following questions**. In your answers use labeled diagrams and provide specific, named examples wherever possible. No aids allowed.*

Q1: **(18 Marks)**

Q1-A: Define the following: **(6 Marks)**

Engineering geophysics	Critical distance	Environmental geophysics
Global and pure geophysics	Solid earth geophysics	Active geophysics

Q1-B: Answer Yes or No **(12 Marks)**

1) The surface gravitational acceleration at the equator is larger than at the North Pole ( )

2) **Active** methods are those that detect variations within the natural fields associated with the Earth, such as the gravitational and magnetic fields ( )

3) Gravitational acceleration is the same everywhere on the Earth's surface ( )

4) The best **orientation of a profile** is normally **at right-angles to the strike of the target**. ( )

5) Gravity method measures the change in density of the subsurface geology ( )

6) The **length of the profile** should be **greater than the width of the expected geophysical anomaly**. ( )

7) **Passive methods** involve generating signals in order to induce a measurable response associated with a target ( )

8) Free-Air correction is made to remove the effect of excess mass below observation point ( )

9) Interpretation may be either **qualitative** or **quantitative** depending on the type of method employed, the end use of the data, and available budgets. ( )

10) Bouguer correction is made to remove the effect of excess mass below observation point and sea level ( )

11) **Profiling** is a means of measuring the variation in a physical parameter along the surface of a two-dimensional cross-section ( )

12) Tidal correction is made to remove the gravitational attraction of the moon and sun on the Earth ( )

لجنة الامتحان و التصحيح * | ا.د. محمد رفعت شريف _د.فريد مكروم _ا.د.حمدى صيصه _د.محمد عوض.*

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Q2: Complete the following **(24 Marks)**

1) There are two forms of noise: **.....(1).....** and **.....(2).....**

2) The **.....(3).....** method detects lateral variations in density. Both lateral and vertical density variations are important in the seismic method.

3) The times required for refracted wave to travel from a common source to geophone at various distance are plotted at the appropriate geophone distances on a graph called a **.....(4).....**

4) The basic elements of planning a geophysical survey are: **.....(5).....**, **.....(6).....**, **.....(7).....**, **.....(8).....**, **.....(9).....**, and **.....(10).....**

5) A geophone placed at **.....(11).....** would receive both the direct and the refracted wave at exactly the same time.

6) **.....(12).....** waves can travel directly through a mass of some substance in any directions. Whereas **.....(13).....** waves can travel only close to the border between two different substances.

7) The terrain correction must be made to account for **.....(14).....** relief in the vicinity of the gravity station. This correction is always **.....(15).....** .

8) The successful geophysical survey design requires careful consideration of the following main factors: **.....(16).....**, **.....(17).....**, **.....(18).....**, **.....(19).....**, and **.....(20).....**

9) Latitude correction is made to remove the effect of both **.....(21).....** and rotation of the Earth.

10) The earth's gravitational attraction is measured with a small instrument called a **.....(22).....**

11) The minimum distance to detect a refracted wave is called the **.....(23).....**

12) A **.....(24).....** correction that accounts for time-dependant mechanical changes within the gravimeter.

Q3: Write short notes on: **(18 Marks)**

1) Plan a geophysical survey for engineering investigations? (5 Marks)
2) Design a geophysical survey for engineering investigations? (5 Marks)
3) Types of seismic waves? (3 Marks)
4) Gravity (reductions) corrections (3 Marks)
5) Advantages and disadvantages of geophysics (2 Marks)

BEST WISHES

Mansoura University Facualty of Sciences Department of Geology Time: 2 hours Date : 30/12/2013		Final Examination (January 2014) Third level credit hours (Geology) Subject : Geochemistry (G 306) Full Mark : 60

First Question :
Answer the Following :- (20 marks)

a) The behaviour of these minor elemuts during magmatic crystallization : (Li^{+1} , Rb^{+1} , Ba^{+2} , Ni^{+2}, Ga^{+3} , Hf^{+4}) . (6 marks)

b) What is meaning by sedimentation as a geochemical process . (7 marks)

c) Factors control in the sedimentation process . (7 marks)

Second Question :
Write short notes on :- (20 marks)

a) The geochemical sedimentary steps separate the elements . (4 marks)

b) The first geochemical differentiation of the earth . (4 marks)

c) Clarke , Clarke concertiation and availability of an element . (4 marks)

d) The progressive change of both(Si /Al) and (Na+k/Al) during continuous series of magma . (4 marks)

e) Chemical composition of sedimentary rocks . (4 marks)

Third Question :
What is wrong statement from the following :- (20 marks)

1) The nickel-iron alloy represents the uppen part of core .
2) Olivine and pyroxene as a product of magmatic crystallization are less stable minerals than the others .
3) The crust consists mainly of igneous rocks .
4) The bulk composition of the earth is mainly determined by composition of the mantle and core .
5) These is absence of Ni and Si in the crust compared with the whole earth .
6) We can name the crust as Alkali – Al silicates .
7) Oxyphile elements are petrogenic elements .
8) The interaction of the atmosphere and hydrosphere on the earth crust is referred as sedimentation.
9) Hydration of an ion is defined as ionic potential .
10) Chemically undecomposed weathering residues are classified as Resistates.

Good Luck & Best Wishes
Prof.A.Genedi

لجنـــة التصحيح :-

١. أ.د / عادل جنيدى
٢. أ.د / صلاح نصر عياد
٣. أ.د / حسنى حمدان
٤. د / محمد عوض

المستوى الثالث - صول صبا - إحصاء تطبيقي ٣٠٢ ر

جامعة المنصورة – كلية العلوم
قسم الرياضيات
التاريخ : 2 / 1 / 2014 م
الدرجة الكلية : 80 درجة
الزمن : ساعتان

امتحان دور يناير 2014 م
برنامج : جيولوجيا
المستوى:الثالث
اسم المقرر : احصاء تطبيقى
كود المادة : ر 302

Answer the following questions:

[1] The following table shows the weight of 75 children

classes	10 –	20 –	30 – -	40 –	50 –	60 – 70
frequency	5	10	20	22	13	5

Find i) The sample Mode ii) The sample variance

iii) The sample median (30 Marks)

[2]a- A coin is tossed 10 times . Let X denotes the number of heads appears . Find

i) $P(X=4)$ ii) $E(5X-1)$ iii) $var(5X-1)$ (10 Marks)

b- Nine measurements of reaction time of an individual to certain stimuli were recorded as 0.28 , 0.33 , 0.30 , 0.32 , 0.27 , 0.29 , 0.27 , 0.31 , 0.33 seconds . Find 95 % confidence interval for actual reaction time (μ) , assuming the population is normally distributed . (10 Marks)

c- Suppose that the birth weight of Egyptian babies has a normal distribution with mean $\mu = 3.3$ and standard deviation $\sigma = 0.3$

Find the probability that a randomly chosen Egyptian baby has a birth weight

1) between 3.0 and 3.9 kg. 2) less than 3.6 kg. (10 Marks)

[3] a- A pair of dice is tossed , let X denotes the sum of the points obtained .

i) Find the probability distribution of X ii) $E(X)$ (10 Marks)

b- Certain tubes manufactured by a company have a mean lifetime $\mu = 800$ hours and a standard deviation of $\sigma = 48$ hours. Find the probability that a random sample of size 36 tubes taken from the group will have a mean lifetime

i) between 784 and 810 hours ii) more than 812 hours (10 Marks)

$Z_{0.025} = 1.96$, $\Phi(2)=0.9772$, $\Phi(-1)=0.1587$, $\Phi(1)=0.8413$, $t_{(0.025,8)} = 2.306$

$\Phi(-2)=0.0228$, $\Phi(1.25)=0.8944$, $\Phi(1.5)=0.9332$

مع التمنيات بالنجاح د. فاتن شيحه

Mansoura University
Faculty of Science
Geology Department
Date: 02/ 01/ 2014

First Term Exam. (Jan.2014)
Third Level (Geology)
Course No. G314
Course: Minerals and Ores Analysis
Time: 2 hours Full Mark: 60

Answer the Following Questions

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

1- Marble is a mono mineralic rock.
2-The specific gravity of a mineral is its mass per unite volume.
3-The metallurgical slages contain real minerals.
4- A detailed chemical composition is sufficient for mineral identification.
5-The density of minerals depends on both chemical composition and crystal structure.
6- Hardness measures the resistance of mineral to indentation.
7- An ore is a mineral deposit from which a metal is extracted.
8- The internal reflection is best seen in the translucent minerals.
9- The short-wavelength limit is a function of metal emitting X-ray.
10- An increase in energy of bombarding electrons produces X-ray of shorter wavelength.
11- The flat plate camera produces a complete X-ray diffraction pattern.
12- Because of hot spot effect, all material should be wet ground for infrared analysis.
13- The evacuated X-ray fluorescence spectroscope can measures elements with Z= 7.
14- Benzidine dye gives blue color with rhodochrosite mineral.
15- Chlorite mineral belongs to the three layers clay structure.

(15 marks)

Question Two: Complete

1- The mineral has a ..... chemical composition.
2- Calcite and halite are.....minerals that have negative magnetic permeability.
3- The internal reflection of cassiterite is..... and that of chromite is.....
4- The.....the atomic number of element, the.....the amount of X-ray is produced.
5- Most of the energy of bombarding electrons in the X-ray tube is converted to.....
6- The first polishing stage of obaque grains is completed using.....
7- The X-ray diffraction results of crystalline substances are measured in..... and.....
8- A glass plate coated with.....fluoresces when irradiated with X-ray.
9- In X-ray diffraction analysis.....is known while in X-ray fluorescence.....is known.
10- A suitable filter of X-ray produced from element with .....is an element with.....
11- The evacuation of an X-ray fluorescence will reduces.....
12- A..... is used as thermal conductor coating the sample in XRMA.
13- For quality control in the industrial plants.....is used.
14- The magneson dye gives.....color with smithsonite.
15- The kaolinite mineral is completely destructed at.....°C due to.....reaction.

(15 marks)

Question : Choose the correct answer

1`- Gypsum deposit is
a) ore mineral b) mineral concentration c) mineral deposit
2- Which of the following is scalar property
a) hardness b) color c) cleavage
3- Vikers apparatus is used for determination of hardness of
a) loose grains b) embedded grains c) altered grains
4- The plagioclases are
a) mixture of minerals b) mixed minerals c) solid solution
5-The change of color of some minerals when bombarded with electrons is
a) fluorescence b) cathodoluminescence c) opalescence
6- The change of reflectance of obaque grains is a property termed
a) reflection pleochroism b) internal reflection c) bireflectance
7-The critical excitation potential depends on
a) nature of target b) applied voltage c) current frequency

8- The detection part of the proportional counter is
a) ionization chamber b) florescent screen c) photographic film
9- The X-ray use in the analysis of rotating crystal is
a) polychromatic b) monochromatic c) secondary
10- The X-ray fluorescence spectroscopy provides information about
a) mineral identity b) crystal structure c) chemical composition
11- The back-scattered electrons signal is a function of
a) atomic number b) crystal structure c) depth of measuring
12- The time between two successive X-ray quanta received by proportional counter is
a) dead time b) recording time c) receiving time
13- In the infrared spectroscopy used in mineralogy ,the measured part of spectra is the
a) absorbed b) reflected c) emitted
14- The inert material used in thermal analysis is
a)CaF b) KBr c) δ Al2O3
15- Heating clay sample to 550C for two hours is used to differentiate kaolinite from
a) montmorillonite b) illite c) chlorite

(15 marks)

Question Four: Write in Two only of the following:

a) Describe the different steps in the opaque mineral grain study under the reflected optical microscope with emphasis on preparation of samples and different properties under both plane polarized light and crossed polars.

b- Explain how the monochromatic X-ray is produced in the lab. and explain how it is used in identification of minerals in a powder sample. Illustrate

a- The X-ray fluorescence analysis (XRF) is a nondestructive technique used to get with certain precaution detailed information of chemical composition of a geologic sample ,discuss and illustrate.

(15 marks)

Good Luck.

Prof. Omar Hegab

لجنة التصحيح :

Prof. O.Hegab , Prof. H. Ghazala , Prof. A. Shaheen and Dr. W. Shukri

٣ صولصيا ٤٠ ٢٠١٣ - صخور متحولة

Mansoura University
Faculty of Science
Geology Department

Final Theoritical Exam.
1st Term 2013-2014

Date: 09 / 01 / 2014
Time Allowed: Two Hours
Full Mark: 60 Marks

نظام :-- الساعات المعتمدة الفرقة :-- المستوي الثالث برنامج :-- الجيولوجيا

الورقة الامتحانية :-- G-301 المقرر:-- صخور متحولة

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- Anatexis ii- Migmatites iii- Rapakivi Granite

iv- Metamorphic Differentiation v- Ores of Metamorphism

1-B- Compare between the followings :- (10 Marks – 5 Marks for each part)

i- Xenoblastic and Idioblastic. ii- Porphyroblastic and Blastoporphyritic.

2-A- Write short notes on the followings :- (10 Marks - 5 Marks for each part)

i- Depth Zones. ii- Zones of Progressive Contact Metamorphism.

2-B- Mention Factors affecting on the followings :- (10 Marks)

i- Textures (5 Marks) ii- Contact Metamorphism (5 Marks)

3-A- Mention names of the Metamorphic Rocks according to the

following Classifications :- (10 Marks - 5 Marks for each part)

i- Mineral and Chemical Composition ii- Parent Rocks

3-B- Write brief account on the followings :- (10 Marks - 5 Marks for each part)

i- Metasomatism ii- Pneumatolitic Metamorphism

4-A- Describe in detail the followings :- (10 Marks - 5 Marks for each part)

i- Thermal Metamorphism of Carbonate Rocks.

ii- Metamorphosed Series of Regional Metamorphism.

4-B- Draw the following Textures :- (10 Marks)

i- Cataclastic (3Marks) ii- Spotted (3Marks)

iii- Gneissose (2Marks) iv- Schistose (2Marks)

GOOD LUCK & BEST WISHES

لجنة التصحيح :- أ.د. محمود قورة - أ.د. أحمد عبد اللطيف - د. شعبان مشعل* - د. هشام سلام