Mansoura University Faculty of Science Mathematics Department Subject: Applied statistics (R 302)		Exam: Jan 2013 Third Year Geology Date : 31 – 12 - 2012 Time allowed :2 hours

Answer the following questions

1- a - The following table shows the weights of students (21 Marks)

weights	22-26	27-31	32-36	37-41	42-46	47-51
No. of students	9	3	10	8	12	8

Find i- median ii- standard deviation iii- mode

b- Suppose that the mortality rate for a certain disease is 0.1 and 10 people in a community contract the disease. Find:
i- the probability that fifty percent will die.
ii- the probability that at least 3 will die? Exactly 3 will die?
iii- the mean and variance. (10 Marks)

2- a- Find the coefficient of variation for the following data :
20, 13, 1, 0, 15, 10, 3, 5, 9, 6. (9 Marks)

b- If X is a random variable has the density function
$f(x) = k(1-x)x \qquad 0 < x < 1$ (10 Marks)
Find i- constant k. ii- distribution function
iii- mean and variance. iv- $P(0 < X < 0.5)$, $P(X = 0.5)$.

من فضلك اقلب الورقة

[3] a- If 20% of the bolts produced by a machine are defective, determine the probability that out of 4 bolts chosen at random

i- one will be defective. ii- at most 3 will be defective.

iii- Find the mean and variance. (10 Marks)

b- The weights of 9 boxes of dog food are 10.2, 9.7, 10.3, 10, 10.1, 9.8, 9.9, 10.3 and 9.8 ounces. Find 98% confidence interval for the mean of all such boxes of dog food. Assume an approximate normal distribution. (10 Marks)

c- If the heights of 500 students are normally distributed with mean 70 inches and variance 16 inches. How many students you expect to have heights between 66 and 72 inches. (10 Marks)

$Z_{0.01} = 2.33$, $t_{9, 0.01} = 2.821$, $t_{8, 0.01} = 2.896$, $\phi(1) = 0.8413$, $\phi(0.5) = 0.6914$, $\phi(2.5) = 0.9937$.

مع أطيب التمنيات بالنجاح

د/ نورا فخرى

المستوى الثالث - جيولوجيا - جيوكيمياء ٢٠١٦

Mansoura University
Faculty of Science
Geology Department
Date: 27/12/2013

Third Year Chemistry
Subject: Geology
Course: Geochemistry (G 306)
Time: 2 hours ***Full Mark: 60***
First Term Exam.

First Question: Complete the following: (15 marks)

1-The atmosphere, biosphere and hydrosphere represent the .....

2-The ..... separates the more homogenous mantle from the heterogenous crust.

3-..... ..... minerals are the main product of the molten sulphides in the early magmatic crystallization.

4-The ..... appears to be homogeneous and presumably consists of a mixture of (Mg, Fe) SiO_3 with the ilmenite structure and (Mg,Fe) O, periclase.

5-At the latest sedimentary geochemical separation step, ... are formed.

6-The term ..... is the concentration of an element within a particular deposit.

Second Question: Put short expression for each (15 marks)

1-It is of silicate composition.

2-It is marked by sudden increase in the seismic velocity.

3-It's density reaches to 3.9 g/cm^3.

4-It helps with course of time consolidation of the loose sediments.

5-The First major geochemical differentiation of geochemical cycle of the earth.

6-They are rich in CaO, CO_2, H_2O and poorer in K_2O and Na_2O.

Third Question: answer two only from A, B and C (15 marks)

A- Correct the following sentences (7.5 marks)

1-Chalcophile elements are very smaller in volume and riched in mantle.

2-Arsenides and bromides are from metallogenic elements.

3-Dunite, pyrohotite and pentlandite minerals are separated from magma as first differentiation stage.

4-The hydrated minerals are formed from products of chemical weathering.

5-The interaction of hydro- and atmosphere on the earth crust is called sedimentation.

B- Chose the correct answer (7.5 marks)

1-The Al_2O_3 and SiO_2 transportation in solution and their redeposition are controlled by (oxidation reduction potential, pH value, hydration, ionic potential).

2-Metamorphism acts above the zone of (sedimentation, weathering, crystallization).

3-The Al_2O_3 and SiO_2 transportation in solution and their redeposition are controlled by (oxidation reduction potential, pH value, hydration, ionic potential).

4-One of the main mineral composed the upper mantle is (dunite, pyroxene, olivine).

5-The Al_2O_3 and SiO_2 transportation in solution and their redeposition are controlled by (oxidation reduction potential, pH value, hydration, ionic potential).

C- Write short notes about the cosmic abundance of elements (7.5 marks)

Fourth Question: Put the mark (√) or (X) after each (15 marks)

1-The term Clark concentration is defined as the average percentage of an element in the earth crust.

2-The first geochemical differentiation of the geochemical cycle is the separation of minor elements during magmatic crystallization.

3-The molten sulphides at the first stage of magmatic crystallization are separated as dunite.

4-The hydrosphere-atmosphere interaction on the earth crust is called metamorphism

5-Quartz and muscovite minerals are the less stable against weathering than olivine.

6-The chemical composition of sedimentary rocks is less variable than that of igneous rocks.

With best wishes, Prof. Adel Genedi

لجنة الإمتحان والتصحيح*:

أ.د. عادل محمد جنيدى* – أ.د. عبد القادر زلطه أ.د. صلاح عياد – أ.د. حسنى حمدان

(المستوى الثالث - جيولوجيا - صخور متحولة - ٢٠١٣)

Mansoura University
Faculty of Science
Geology Department

Final Theoretical Exam
First Term 2012/2013

Date: 03 / 01 / 2013
Time Allowed: Two Hours
Full Mark: 60 Marks

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

برنامج :-- الجيولوجيا الورقة الامتحانية :-- ج ٣٠١ المقرر:-- صخور متحولة

Metamorphic Petrology

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

1- Define the following terms :-- (3 Marks for each part)
   - A- Metamorphic differentiation.
   - B- Thermal metamorphism.
   - C- Tourmalinisation.
   - D- Regional metamorphism.
   - E- Greisening.
   - F- Anatexis
   - G- Rapakivi granite. (2 Marks)

2- Compare between each pair of the followings :-- (5 Marks for each part)
   - A- Porphyroblastic texture & blastoporphyritic texture.
   - B- Serpentine marble & tremolite marble.
   - C- Orthogneiss & paragneiss.
   - D- Migmatite & lit-par-lit gneiss

3- Draw only the followings :-- (5 Marks for each part)
   - A- The metamorphic textures.
   - B- Table of metamorphic zones.
   - C- Table of metamorphic series of different parent rocks.
   - D- Table of metamorphosed ore deposits.

4- Mention only the followings :-- (5 Marks for each part)
   - A- Types of metamorphism.
   - B- Metamorphic rock names.
   - C- Sequence of index minerals in order of increasing metamorphic grade.
   - D- Mineral facies of metamorphic successive stages.

GOOD LUCK & BEST WISHES

لجنة التصحيح :- أ.د. محمود قورة -- أ.د. صلاح عياد -- أ.د. عادل جنيدي -- د. شعبان مشعل*

المستوى الثالث - جيولوجيا - جيولوجيا المياه وشكل الأرض ٢

Mansoura University
Faculty of Science
Department of Geology

First Term Exam (Jan 2013)
Third level (Geology Program)
Subject: G 302
Course: Hydrogeology and Geomorphology
Time: 3 HOURS Full Mark: 60 marks
Date: January 10, 2013

Answer THREE Questions only

Q1: Define and explain **(20 marks)**

a) Water table (level). (7 marks)

b) Influent and effluent streams. (7 marks)

c) Hydraulic gradient. (6 marks)

Q2: Discuss the following subjects **(20 marks)**

a) Classification of groundwater reservoirs. (10 marks)

b) The different horizons in the non-saturated zone of groundwater and its movements. (14 marks)

Q3: Discuss the followings **(20 marks)**

a) Five fundamental concepts in geomorphology. (10 marks)

b) Factors controlling the type and rate of weathering. (10 marks)

Q4: Define and explain **(20 marks)**

a) Plateaus. (7 marks)

b) Plains. (7 marks)

c) Cordillera. (6 marks)

Best Regards
Dr. H. Serag El-Din

Examiners:
Prof. M. Kora Prof. M. Sherif Dr. H. Serag El-Din* Dr. M. Awad

الفرقة الثالثة - جيولوجيا - جيوفيزيقا ٢٠١٣

Mansoura University
Faculty of Science
Geology Department
Date: 21 /01/2013

First Term Exam (January 2013)
Geology program Third level
Subject: G 307 Tectonics
Time: 2 hours Full Mark: 60

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

Question 1 **a. Complete the following** *(14 marks)*

i- Six continents are recognized in the early Paleozoic, these are ..(1)…, …(2) , …(3).. , … (4).. , … (5).., and …(6)..

ii- The … (7)….. Orogeny involves collision of …(8)… and …(9)…. to form Laurasia at …(10)... time.

iii- The Hercynian Orogeny occurs in … (11)… time and involves the assembly of …(12)… continent due to the collision of …(13)… and …(14)..

b. Write short notes on the Criteria of Continental drift. *(6 marks)*

Question 2 **write short notes on :**

a. Explain that "the non-marine sediments are widely recognized on both Silurian and Triassic time". *(6 marks)*

b. Write short notes on oceanic - oceanic convergence, continental - continental divergence and transform plate boundaries. Give examples of each case. *(7 marks)*

c. Write short notes on the ophiolite sequence and its tectonic significance. *(7 marks)*

Question 3 **write short notes on :**

a. Write on the Wilson tectonic cycle and give example for each event. *(7 marks)*

b. Write short notes on the hot spots and its tectonic significance. *(6 marks)*

c. "The pacific Ocean is constituted of several Oceanic plates" please explain the tectonic relation of these oceanic plates. *(7 marks)*

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Thursday, 17 January **2013**
First semester –Academic Year 2012/2013
Full Mark: 60
Time allowed: 2 Hours- (*09.00-11.00 AM reading time*)

Q2-B: Complete the following **(12 Marks)**

1) The units of Young's modulus is .....
2) The gravity and magnetic fields are ..... methods.
3) Refraction method are applied to determine ..... depth.
4) The geomagnetic field ..... with depth.
5) Fault plane can be detected from the ..... motion of the P-wave.
6) The velocity of seismic waves ..... with depth.
7) In radioactive method, the ..... are stopped by very small thickness matter.
8) The presence of fluids in an unconsolidated rocks causes..... in electric resistivity.
9) P-waves has velocities ..... than S-waves.
10) The residual methods are used to detect..... structure.
11) ..... is located indirectly by radiation.
12) The symbol of magnetic method is .....

Q3: **(20 Marks)**

Q3-A: Match between A and B: **(12 Marks)**

Theme		Option	
1	The magnetic inclination angle increase	A	Detect anomalies in the electrical properties of rock
2	Griffen method is considered	B	Variation with terrain
3	Telluric current method	C	Acquiring permanent magnetization
4	Graphical method is sometimes	D	In seismic prospecting
5	The gravitational field is	E	From equatorial to pole
6	Ferromagnetic substances are capable of	F	As direct computation of residual
7	Compressional waves are used	G	Uses natural earth current
8	Electrical methods are used to	H	Known as regional correction
9	The amplitude of motion of Rayleight waves decrease	I	Of earth because they are not pas in core
10	The γ -rays can be used in the search for	J	Is constant altitude above sea level
11	In aeromagnetic survey for oil the height of the flight is	K	Radioactive element in the earth's crust
12	Secondary waves are important in study the structure	L	Exponentially with depth below the surface

Q3-B: Answer BRIEFLY on **FOUR** of the following: (support your answer with drawing) **(8 Marks)**

1) Instruments for gravity measurement.
2) Elements of earthquake, seismograph, seismogram and location of epicenter.
3) Density determination.
4) Geological examples from electrical prospecting.
5) Interpretation of magnetic data and Peter's met

BEST WISHES

المستوى الثالث - جيولوجيا - جيوفيزياء عامة ٢٠١٣

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Thursday, 17 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-301 (Geophysics) for 3rd Level (Geology "Credit Hours Board)

GPHY-301 (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: Answer Yes or No **(12 Marks)**

1) In seismic prospecting the quantities which are measured are distance and time.
2) The configuration of the basement is determined by the vertical magnetic component.
3) The Bouguer correction is always opposite in sign to the Free-air correction.
4) Sedimentary basins are less resisting to telluric current than shallow buried granite.
5) There is no abrupt change of the earthquake wave velocities at the earth crust-mantle-core boundaries.
6) In gravity prospecting, we use absolute density value.
7) The diamagnetic rock has negative susceptibility.
8) In Wenner method, the distances between electrodes are not equal.
9) The number of segments in travel-time curve is equal to the number of beds.
10) Seismic method of prospection is considered as static methods.
11) Resistivity method is used for detecting nonlinear structural types.
12) The vertical magnetic field is taken positive downwards and negative upwards.

Q1-B: Compare between **FOUR** of the following: **(8 Marks)**

1) Travel-time curves in both seismic refraction and seismic reflection.
2) Wenner method and Schlumberger method in electrical prospecting.
3) Second vertical method and downward continuation method.
4) Aeromagnetic method and ground magnetic method.
5) Density determination by direct method and indirect method.

Q2: **(20 Marks)**

Q2-A: BRIEFLY explain **FOUR** of the following: **(8 Marks)**

1) In any observatory there are three seismographs.
2) Gravity and magnetic methods are static methods.
3) Petroleum is found at the crest of the anticline.
4) Bouguer correction is subtracted from reading of instrument for high places upon sea-level.
5) For measuring magnetic anomalies, Shemidt type magnetometer put parallel to earth's magnetic field.

Mansoura University
Faculty of Science
Geology Department
Date: 31/ 12/ 2012

First Term Exam. (Jan.2013)
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- A single phase exsolves into distinct phases at low temperature.
2- All mineral deposits are used as it is in industry.
3- The color of some minerals changes by electron bombardment.
4- Alabaster is a polymineralic rock.
5- The specific gravity of a mineral is its mass per unite volume.
6- The cleavage of minerals is a scalar property.
7- Rutile show small negative magnetic permeability.
8- Pleochroism is a property of minerals measured under crossed polars.
9- The internal reflection is best measured in the isotropic mineral grains.
10- The lamellar twins of hematite is growth.
11- The short wavelength limit is a function of type of material emitting X-ray.
12- The white X-ray radiation is used for Laue film production.
13- The flat-plate system produces a complete diffraction pattern of sample.
14- The evacuated X-ray fluorescence spectroscope can measure elements with Z > 4.
15- In the X-ray fluorescence analysis the analyzed sample is the target.
16- The back scattered electron signal is a function of crystal structure and topography.
17- A carbon film is used as thermal conductive coating samples for XMA.
18- The alpha particles track on photographic film is curved with >25 μm spacings.
19- Because of hot spot effect, samples should be wet ground for IR analysis.
20- The dehydroxylation of clay gives exothermic reaction on the DTA curve.

Question Two: Choose the correct answer

1- Metals are extracted from
a- ore mineral b- mineral deposit c- mineral concentration
2-The black sand is
a- a mineral deposit b- an ore deposit c- a mineral concentrate
3-Vikers hardness measures hardness of
a- separate grains b- embedded grains c- altered grains
4-Under plane polarized light, because of high birefringence of calcite it
a- twinkles b- pleochroics c- darkens
5- The study of minerals under convergent light is used to determine
a- extinction angle b- pleochroism c- optic sign
6-The grinding of samples for reflecting microscope study is accomplished using
a- SiC b- Al2O3 c- diamond
7-The change of color of minerals on rotating stage of reflected microscope is
a- bireflectance b-relative pleochroism c- internal reflection
8-The reflectivity of opaque mineral grains depends on
a- wave length of incident light b- crystal structure c- chemical composition
9-The X-ray is shorter in wavelength than
a-ultraviolet b- γ-rays c- infrared
10-The X-ray diffracted beams on the photographic film of single crystal are marked by
a- bright spots b- straight lines c- curved lines
11—The polychromatic X-ray is converted to monochromatic using
a- solar slits b- absorption filter c- receiving slits
12-The critical excitation potential depends on
a-nature of target b- applied voltage c- current frequency
13- The intensity measured in X-ray phase analysis is that of
a-incident beam b- transmitted beam c- diffracted beam

14-The on stream X-ray analysis is used for determination of
a- chemical composition b- crystal structure c- quality control

15-X-ray fluorescence analysis produces information of
a- mineral composition b- grain size c- chemical composition

16-The bombardment of sample surface with accelerated electrons will produces
a- secondary X-ray b- primary X-ray c- primary electrons

17-The mass absorption coefficient of a mineral is directly proportional to
a- X-ray wavelength b- X-ray intensity c- X-ray type

18- Fiegl·s solution gives black color with
a- aragonite b- calcite c- witherite

19-In the X-ray analysis of clays, heating to 550 C is used to differentiate kaolinite from
a- montmorillonite b-illite c- chlorite

20-The thermal reaction which is not accompanied by any loss in weight in clay analysis is
a- dehydration b- dehydroxylation c- transformation

Question Three: Write on Two only of the following

a- Bragg law is the basic principal of X-ray analysis, explain how it is used in mineral analysis using X-ray diffractometer , sample preparation, measuring and interpretation. Illustrate .

b- The X-ray fluorescence spectroscopy is an important tool for chemical analysis of geologic samples; discuss principles, sample preparation precautions and interpretation

a- Thermal analyses are useful in identification of clay minerals; show how with regard to compartments of apparatus and interpretation of data.

Good Luck

Prof. Omar Hegab

لجنة التصحيح :

Prof. O.Hegab , Prof. A.Taha , Prof. A. Shaheen and Prof. H. Ghazala