Mansoura University
Faculty of Science
Geology Department

جامعة المنصوره
كلية العلوم
قسم الجيولوجيا

General Geophysics Final Exam (3rd level Geophysics) 2014/2015

جيوفيزياء عامه جف ٣٠١ (المستوى الثالث برنامج الجيولوجيا) 2014/12/25 صباحا

Time: 2 hours

Answer the Following Questions (Total marks 60)

1- Compare between the following? (15 marks)

a- Passive and active geophysical methods.

b- Inclination and declination angle.

c- Variations in gravity and magnetic field.

d- Surface and body waves.

e- Critical and incident angels.

2- Explain the reasons of the following? (15 marks)

a- Acceleration (g) or normal gravity field increases towards the north.

b- Density of the earth is concentrated in its center.

c- Magnetic is more complex than gravity.

d- Velocity of seismic waves increase with density.

e- A seismic method is an active method.

3- Complete the following: (10 marks)

f- Gravity measurements based on measuring of ----------of rocks.

g- Elevation corrections consists of ----------and ----------corrections.

h- Magnetic susceptibility of igneous rocks is -------- --------- than sedimentary rocks.

i- We determine the ----------and ---------- from the time-distance graph.

j- Gravity measure---------- of the earth's gravity filed while magnetic measure ----------and ---------- of the earth's magnetic field.

k- Seismic methods based on measurements ----------of Vp.

l- Electrical methods based on variations in the ----------or----------earth's materials.

m- Average density of the earth equals to ------- g/cm3.

4- Write on the following with illustrations: (20 marks)

a- Stable and unstable gravity meters.

b- Proton and fluxgate magnetometers

c- Reflection and refraction seismic methods

d- Seismic waves.

Best Wishes

Prof. Dr. Hosni Ghazala Dr. Farid Makroum Dr. Mohamed Awad Dr. Walid El-Deiasty*

المستوى الثالث - جيوكيمياء - (ج ٢٠٦)
جيولوجيا

Mansoura University
Faculty of Science
Geology Department
First Term Exam (January 2015)
Date: 29/12/2014

Level: Third
Program: Geology
Subject: Geochemistry
Code: G306
Time: 2 hours
Full Mark: 60

First Question: (15 marks)

What is meaning by each of the following? every one (1.5 mark)

1-The interaction of the atmosphere and hydrosphere on the earth crust.
2-The product of an extensive chemical differentiation in the earth crust.
3-When the complexity of silicate structure increases in continous reaction series and both muscovite and oligoclase formed
4-They show affinity for sulphides, have 18 electrons in their outer shells, and have an intermediate ionic potential.
5-The processes that working under the zone of weathering.
6-The absorption of water on the surface of minerals and formation of certain minerals.
7-Various processes as weathering, erosion, transportation, deposition and diagenesis that work on sedimentary rocks and sediments.
8-If ilmenite, pyroxene and periclase minerals are recorded with FeL(FeO+MgO) =0.1-0.2.
9-The sial layer of granitic composition.
10-The changes which do not affect the bulk chemical composition of the rock during metamorphism..

Second Question: (15 marks)

Complete the following? every one (1.5 mark)

1-..... is completing by chemical processes.
2- ..... elements are rich in sulphides and are represented by Cu, Zn, Ag, Ga, Mg and Cd.
3-The first geochemical differentiation of the geochemical cycle of the earth is defined as .....
4-The concentration of Mn in pyrolusite is called .....
5-The ..... are rich in CaO, CO_2 and H_2O.
6-The ..... include N^{+5}, C^{+4}, P^{+5} and S^{+6} which described as soluble complex anions.
7-The ..... is significant in controlling the precipitation of hydroxides from solution.
8-During the formation of sedimentary rock, the place of deposition of an elements is determined by .....
9-During sedimentation, sediments are geochemically classified into .....
10-The behaviour of ..... during magmatic crystallization is defined as camouflaged, captured and adlitted.

Third Question: (15 marks)

Write on four of the following?

1-The first and second magmatic stages.
2-Lithophile and atmophile elements.
3-Chemistry of sedimentary rocks.
4-Zonal structure of the earth.
5-The different types of meteorites.

Fourth Question: (15 marks)

Answer two of the following? every one (7.5 marks)

1-Sketch geochemical map for the formation of both quartz and cassterite minerals.
2-Sketch metamorphic geochemical map for the stability of these minerals; muscovite, potash feldspars and spessartite.
3-Discuss what do you know about both achondrites and aerolites.

With best wishes, Prof. Adel Genedi

لجنة المصححين:
أ.د. عادل محمد جنيدى* ، أ.د. أحمد عبد اللطيف المتولى ، أ.د. حسنى حمدان الدسوقى ، د. محمد عوض

Mansoura University
Faculty of Science
Geology Department
Date: 01/ 01/ 2015

First Term Exam. (Jan.2015)
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- All minerals have definite chemical composition.
2- The color of some minerals changes by electron bombardment.
3- The metallurgical slages contain real minerals.
4- The hardness of minerals is a vector property.
5-The density of minerals depends on both chemical composition and crystal structure.
6- The internal reflection is best measured in the isotropic mineral grains.
7- The continuous X-ray is produced once the excitation potential of target is achieved.
8- Kα X-ray is always higher in energy than Kβ and both are lower than continuous X-ray.
9- In the Laue camera photographic technique, monochromatic X-ray is used.
10- The lamellar twins of hematite is growth one.
11- The short-wavelength limit is a function of material emitting X-ray.
12- The test sample must be ground to size less than the wave length in IR analysis.
13- The back scattered electron signal is a function of crystal structure and topography.
14- Rhodeozonic acid gives orange red color with calcite.
15-Illite is a clay mineral belongs to the four layers structure with K in the interlayer spaces.

(15 marks)

Question Two: Complete

1- The color of a mineral is caused by.....
2- Magnetite is a.....mineral that has ....magnetic permeability.
3- The optical properties measured under the plane light include.....and.....
4- The.....the atomic number of element, the.....the amount of X-ray is produced.
5- Based on absorption edge, X-ray filter is used to eliminate the.....
6- The first polishing stage of obaque grains is completed using.....
7- The extinction of uniaxial minerals is either.....or.....
8- The intensity of X-ray diffraction peak is a function of.....of mineral present.
9- In X-ray diffraction analysis.....is known while in X-ray fluorescence.....is known.
10- The time taken by X-ray detector before recording is called.....
11- In X-ray microanalysis (XMA) secondary..... and secondary..... are produced.
12- The intensity of back scattered electrons depends on.....and.....of samples.
13- A.....is used as..... coating sample in X-ray microanalysis.
14- The infrared analysis is based on the interaction between.....and.....in minerals.
15- The loss in weight at 100°C in the TG of montomorillonite is due to.....

(15 marks)

Question : Choose the correct answer

1`- The black sand is a
a) ore mineral b) mineral concentration c) mineral deposit
2- The biaxial mineral extinction is
a) parallel b) symmetrical c) oblique
3- Vikers apparatus is used for determination of hardness of
a) loose grains b) embedded grains c) altered grains
4- The arrowhead twins in marcasite is
a) growth b) deformation c) inversion
5-The reflectivity of obaque grains depends on
a) light wavelength b) crystal structure c) chemical composition
6- The study of minerals under convergent light is used to determine
a) extinction angle b) twinkling c) optic sign
7-The critical excitation potential depends on
a) nature of target b) applied voltage c) current frequency

8- The detector used in X-ray diffractometer is the
a) ionization chamber b) florescent screen c) photographic film

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

10- Evacuation of X-ray tube is made to
a) accelerate electrons b) reduce absorption c) decrease heat

11- The polychromatic X-ray is converted to monochromatic one using
a) solar slits b) receiving slits c) absorption filters

12- The electron probe X-ray microanalyser is used to determine the
a) crystal structure b) chemical composition c) mineral composition

13- The back scattered electron images give information of
a) atomic number b)sample thickness c) grain morphology

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 montomorillonite from
a) kaolinite 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 how the diffractometer is used for identification of mineral composition of geologic samples ,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

جامعة المنصورة كلية العلوم قسم الرياضيات	المستوي الثاني جولوجيا المادة : إحصاء تطبيقي الاختبار النهائي لمقرر الاحصاء التطبيقي الزمن ساعتان	

Answer the following Questions:

Q.1

a- We want to compute the sample variance of the following simple data
10, 21, 33, 53, 54.

b- Consider the following frequency distribution of the ages of 100 women

C.I. Age	True C. I.	Freq. No. of women f_i	Cumulative Freq.	Mid-Point m_i	$m_i f_i$	$m_i^2 f_i$
15 – 19	14.5 – 19.5	8	8	17	136	2312
20 – 24	19.5 – 24.5	16	24	22	352	7744
25 – 29	24.5 – 29.5	32	56	27	864	23328
30 – 34	24.5 – 34.5	28	84	32	896	28672
35 – 39	34.5 – 39.5	12	96	37	444	16428
40 – 44	39.5 – 44.5	4	100	42	168	7056
		100				

i- Calculate the sample mean
ii- Calculate the sample variance
iii- Calculate the sample coefficient of variation.

Q.2

339 Physicians are classified as follows.

Age	*Daily* B_1	*Occasionally* B_2	*Not atAll* B_3	*Total*
20 – 29 (A_1)	31	9	7	47
30 – 39 (A_2)	110	30	49	189
40 – 49 (A_3)	29	21	29	79
50 – + (A_4)	6	0	18	24
Total	176	60	103	339

Experiment is selecting a physician at random: find the following probabilities
The selected physician is aged 40 – 49 .
The selected physician is aged and smokes occasionally 40 – 49 .
The selected physician is aged 30 – 39 or aged 40 – 49 .

Q.3

a. Suppose that in a certain city, the probability that a man has high blood pressure is 0.15
If we randomly select 6 men from this city, find
   i. The probability distribution of the number of men out of 6 with high blood pressure.
   ii. The expected number of men out of 6 with high blood pressure.
   iii. The probability that the men out of 6 with high blood pressure is zero.

b. Suppose that the number of snake bites cases seen at Mansoura University Hospital in a year has Poisson distribution with average is 6 bite cases find the probability that the number of snake bite will be 7 .

مع اطيب التمنيات بالنجاح أ.د. عوض الجوهري

٣.C ع.

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Sunday, January 12, **2015**
First semester –Academic Year **2014/2015**
Full Mark: **60**
Time allowed: **2** Hours

3rd level Geology Program
Subject Code: G302
Course: Groundwater and Geomorphology

Answer THREE Questions only

Q1. Discuss the following subjects:

a) Hydrologic cycle (10 marks)

b) Types of groundwater reservoirs (10 marks)

Q2. Compare between:

a) Confined and non-confined aquifers (5 marks)

b) Recharge and discharge areas (5 marks)

c) Influent and effluent streams (5 marks)

d) Perched and connate water (5 marks)

Q3. Write on groundwater occurrences and its movements (20 marks)

Q4. Define and explain:

a) Water table (level) (5 marks)

b) Porosity and permeability (5 marks)

c) Hydraulic gradient (5 marks)

d) Salinity content (5 marks)

لجنة الإمتحان والتصحيح: Prof. Abdulla Shahin – Dr Shaaban Mashaal – Dr. Hamdi Serag El Din – Dr. Ahmed El Galadi

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Mansoura University
Faculty of Science
Geology Department

Final Theoretical Exam.
1st Term 2014 - 2015

Date: - 05/01/2015
Time: - Two Hours
Full Mark:- 60 Marks

انظام الساعات المعتمدة | برنامج الجيولوجيا | المستوي الثالث

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

METAMORPHIC PETROLOGY

ANSWER THE FOLLOWING QUESTIONS: - Each Question = 15 Marks (Each part = 5 Marks)

1-A- Draw textures which have not a preferred orientation.
B- Define: - Anatexis, Migmatites, Rapakivi granite.
C- Compare between: - Metamorphic differentiation and metamorphic ores.

2-A- On what factors depend the contact metamorphism width aureole?
B- Mention names of depth zones and zones of progressive contact metamorphism.
C- Describe: - Buchites, Phyllonites, Eclogite.

3-A- Suggest a parent rock for the mineral assemblages:-
i- Plagioclase + hornblende ii- talc + serpentine iii- calcite + wollastonite.
B- Compare between Metasomatism and pneumatolitic metamorphism.
C- Define: - mineral index, mineral facies, ACF diagrams.

4-A- Draw the tectonic settings and their relations to metamorphism.
B- Explain the thermal metamorphism of the carbonate rocks.
C- Arrange the followings according to the increase of the metamorphic degree:-
i- Hornfels, buchites, spotted schist
ii- Phyllonite,mylonite, fault breccia
iii- Hornblende, chlorite, staurolite

Good Luck & Best Wishes

لجنة التصحيح:- أ.د. محمود الشربيني - أ.د. أحمد عبد اللطيف - أ.د. عمر حجاب - د. شعبان مشعل*