المستوى الثانى - جيولوجيا جيوفيزياء
طبقات عامة ج ٢٠٦

Mansoura University
Faculty of Science
Geology Department
Course Title: General Stratigraphy
Code: (G 206)
Full marks: 60

Second Semester (May 2014)
2rd level, Geology & Geophysics
Time: 2 hours
Date:2/6/2014

أجب عن الأسئلة الثلاثة التالية؟

السؤال الأول (٢٠ علامة)

أولا : أكتب نبذة مختصرة عن: (١٥ علامة، لكل خمس علامات)

١- بعض إسهامات العلماء الأوائل فى مجال ومنشأ علم الطبقات.

٢- الزمن المطلق وتقديرالأعمارمتضمنا المحاولات الأولى لحساب عمر الأرض بالسنين وأيضا تقدير العمر المطلق على أساس من معدلات نمو الكائنات. ٣- نظرية الألواح التكتونية

ثانيا: أذكر فقط : (٥ علامات، لكل علامة):

١- نوعين من أنواع القطاع النموذجى (Stratotype).
٢- قسمين رئيسين لمقياس الزمن الأرضى (Modern Geologic Time Scale)
٣- ثلاث خواص للتكوين فى الطباقية الحجرية (Formation)
٤- نوعا من أنواع عدم التوافق يوجد تحته صخورنارية وفوقه صخور رسوبية.
٥- بنية رسوبية أولية تتواجد على السطح العلوى للطبقة وأخرى تميز السطح السفلى للطبقة.

السؤال الثانى: أجب عن الآتى (٢٠ علامة)

أولا: اختر الصحيح من الكلمات من بين القوسين *والمكتوبة بخط مائل*: (١٠ علامات، لكل علامة)

١- الكمبرى المبكر (Early Cambrian) من وحدات: (*Chronologic units - Chronostratigraphic units*).
٢- لا يتطلب فى الوحدة الطباقية الصخرية (Lithostratigraphic unit) أن يطبق عليها مبدأ التعاقب وذلك فى: (*الكود الطباقى لأمريكا الشمالية – المرشد الطباقى العالمى*).
٣- القطاع النموذجى الوحدة هو *(A unit stratotype–Parastratotype)*
٤- يعد إحداث تغييرات طفيفة فى تعريف أحد حدى (بالياء المشددة) الوحدة الطباقية: (*Revision - Abandonment*).
٥- الوحدة الطباقية المتجانسة صخريا والتى يجب أن تكون قابلة لأن توضع على الخرائط المعتادة هى: (*Member-Formation*).
٦- التكوين الذى يحمل اسم الحجر الجيرى الأسود المنياوى *(Formal-Informal)*.
٧- النسق الفوقى (Supersuite) من وحدات: *(Lithodemic units- lithostratigraphic units)*.

٨- أحد طرق المضاهاة الحجرية هو *(التتبع الجانبى للطبقة- تحديد النطاق الحياتى)*
٩- يكون عمر الصخر الذي يحتوى على ربع جرام من عنصر مشع وثلاثة أرباع من عنصر خامل وليد والذى فترة نصف عمره ٥ مليون سنة (١٠-٢٠ *مليون سنة*)
١٠- وحدات الطباقية الحياتية تعتمد على (نوع الصخور – نوع الحفريات)

ثانيا: أذكر المصطلح العلمى مع كتابة المرادف له باللغة الإنجليزية (١٠ علامات، لكل واحدة)

١- وحدة طباقية من "تعاقب متوافق لطبقات متحدة المنشأ يحدها سطحان من عدم التوافق".
٢- وحدة طباقية محصورة بين أسطح عدم التوافق.
٣- من طرق المضاها التى تعتمد على الاقتفاء الجانبى لوحدات الطباقية الحجرية، والتشابه الحجرى والوضع الطباقى والخواص الجيوفيزيائية.
٤- قانون ينص على أن الصخر الذى يحاط به صخر آخر يكون أقدم من ذلك الصخر المحيط به.
٥- نطاق حياتى يعرف بوجود وفرة غير عادية لمصنف أحفورى أو أكثر.
٦- نظرية قديمة مشهورة نتج عنها نظرية الألواح التكتونية (Plate tectonics)
٧- وحدات تضم الزمان والحقب والعصر والعهد والعمر والأوان.
٨- قانون ينص على أن الطبقات المتواجدة جانبيا تتواجد أيضا رأسيا.
٩- نطاق حياتى يؤسس على وجود مصنف حفرى واحد.
١٠- وصف لحالة بحر نتج عنه أن الرواسب الناعمة التحبب تغطى الرواسب الخشنة التحبب.

السؤال الثالث:أجب عن الآتى (٢٠ علامة)

أولا: وضح مستعينا بالرسم ما أمكن ذلك :(١٠ علامات)

١- ثلاثة أنواع من أسطح عدم التوافق. (٣ علامات)
٢- ثلاث مرتكزات للطباقية الحياتية. (٣ علامات)
٣- مخطط يوضح تقسيمات وأسس وتطبيقات الطباقية وعلاقتها بفروع علوم الأرض المختلفة. (٤ علامات)

ثانيا: أجب بالصح أو الخطأ : (١٠ علامات، لكل علامة)

١- قاطع عمره ٢٠٠ مليون سنة من الممكن أن تتبع الصخور التى قطعها زمان الحياة الخفية.
٢- يعبر ال Hiatus عن الزمن الذى لا يمثله طبقات عند نقطة ما من التتابع أو زمن لا يحدث فيه ترسيب.
٣- التتابع الرسوبى وفقا للعالمين متشوم وفيل هو طبقات غير متوافقة ذات منشأ واحد يحدها سطحا عدم توافق.
٤- إعادة تعريف الوحدة الصخرية لا مساس فيه بحدود الوحدة.
٥- المسميات الرسمية للتكوينات (formations) قد لا تحتوى على شق جغرافى.
٦- يحتوى نطاق أبل على مصنف حفرى واحد.
٧- الطباقية الحجرية هى عنصر الطباقية الذى يعالج عمر الطبقات وعلاقاتها الزمنية.
٨- الطبقة قد تكون وحدة طباقية حجرية.
٩- أطول دورة طباقية هى السيكلوثيم (Cyclothem).
١٠-تستخدم البنيات الرسوبية الثانوية (Secondary structures) بنجاح فى معرفة قمة الطبقة من قاعها.

المصححون: أ. د. حسنى حمدان حمامة* أ.د. صلاح نصر عياد

المستوى الثانى - جيوفيزياء - تسجيل خاص بـ 2 ص

Mansoura University
Faculty of Science
Geology Department
Date: 09/06/2014

كلية العلوم
جامعة المنصورة

Second Term Exam. (June 2014)
Second Level (Geolophysics)
Course No. G205
Course: Sedimentation & Sedimentary Rocks
Time: 2 hours Full Mark: 60

Answer the Following Questions

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

1- Shale is mainly composed of clay minerals.
2- Muscovite is more resistant to weathering than biotite.
3- Granite is more susceptible to chemical weathering than sandstone.
4- The weathering mantle is always enriched in Na2O due its high mobility.
5- The mud constituents are normally transported by turbulent flow.
6- Fault breccia is more mature than paraconglomerate.
7- The effect of rubbing one particle against another is grinding.
8- The porosity of sand reaches up to 45%.
9- The more mature argillaceous rock is enriched in Al2O3.
10- The dip of simple planar tabular dross-bedding is the angle between topset and bedding plane.
11- Arkose is generally formed by weathering of basalt .
12- A sedimentary rock contains >75% matrix is wackestone
13- The quartz wacke is texturally immature and mineralogically super mature.
14- Shale is massive mudstone.
15- A sandstone contains > 15% cement and > 50% rock fragments is litharenite.
16- The solubility of silica is increased with the increase of pH.
17- Pelmicrite is not included in Folk classification because pellets are more than 2mm in size.
18- Limestone with < 10% mud is grainstone.
19- Limestones normally contain mineral formed by replacement.
20-The surface soils of the hyper arid areas are rich in K salts.

(20 marks)

Question Two: Complete

1-The common epiclasic sedimentary rocks include.....,.....and.....
2- Grain size analysis of the fine grained sediments is carried out using.....method.
3-The porosity of.....is greater than that of.....
4-The fine clastic sediment grains are moved by.....
5-The nature of transporting flow is determined by.....and.....
6-The grains of super mature sediments are.....,.....and.....
7- ..... and..... are tow types of cross-bedding.
8-The thin lamina is thinner than.....Cm. while the thick bed is thicker than.....Cm.
9-The grains entrainment of clastic sediments is caused by.....and.....
10- A coarse sedimentary rock composed of various rounded grains in mud is.....
11- The quartz sand grains makeup one of.....while silty ones constitute.....of sandstones.
12- The feldspathic greywacke is a sandstone rich in.....and.....
13- The matrix of clastic sediments is ..... While the cement is ....
14- Folk s classification of limestones depends on.....,.....and.....while that of Dunhum on...
15- A coarse clastic sedimentary rock contains quartz clast and < 15% matrix is.....
16- The high Mg-calcite is inverted to.....in older carbonates.
17- A sandstone contains > 15% matrix, > 10% feldspars and > 50 rock fragments is.....
18- A carbonate rock contains < 10 mud, 10% pellets,>25 shell fragments is.....
19- Evaporite minerals are precipitated either in.....or.....or.....
20- The sequence precipitation from sea water by evaporation is.....,.....,.....,then.....

(20 marks)

اقلب الصفحة

لجنة التصحيح: Prof.O.Hegab and Prof.A.Elshahat

Question Three: Choose the correct answer :

1- The calcareous shale is a type of
a- clastic rocks b- carbonate rocks c-hybrid rocks
2- The disintegration of original rock is caused by
a- frost action b- oxidation c- carbonation
3- The upper part of a cumulative curve points to
a-bedoad b-suspended load c-traction load
4- In cumulative curves of sediments the degree of sorting is indicated by
a- slope of curve b-length of segments c- number of segments
5- In the direct methods of porosity measurement the measured porosity is the
a- total b- effective c- bulk
6- The mineralogical maturity of a sediment is achieved through
a- weathering b-diagenesis c-transport
7- The ripple index determines
a- current velocity b-current direction c- current type
8- The dip angle of imbrication points to
a- upstream direction b- downstream direction c- transport regime
9- The sedimentary structure characteristic to the fine grained sedimentary rocks is
a- imbrication b- graded bedding c-lamination
10- Conglomerates rich in argillaceous matrix are
a- oligomictic b-petromictic c- para
11- A sandstone with > 50% rock fragments in a matrix is
a-lithic arenite b-lithic wacke c- arkose
12-The calcite of older carbonate rocks is produced by
a- replacement b- transformation c- solution
13- A limestone contains < 50% mud is
a-mudstone b- packstone c- grainstone
14- Limestone with sand size>25% bioclast, <25% oolites and <25% pellets cemented by micrite is
a- biomicrite b- biopelmicrite c-oopelbiomicrite
15- Oolites are distinguished from pellets by
a-color b-size c-shape
16- The size of calcite deposited by cavity filling is
a-increasing inward b- decreasing inward c- with no trend
17- The vuggy porosity is developed by
a- oolites solution b- fossils solution c- bulk solution
18- The mineral association precipitated in a playa depends on
a- nature of water b- nature of country rocks c-climatic regime
19- The precipitation of mineral phases in evaporates depends on
a-solubility product b-temperature c-wind direction
20- The sylvite mineral is precipitated directly on top of
a- gypsum b- halite c-anhydrite

(20 marks)

Good Luck

Prof. Omar Hegab

MANSOURA UNIVERSITY
Faculty of Science
Geology Department
Mansoura-EGYPT

Date: Thursday, 05 June **2014**
Final semester –Academic Year 2013/2014
Full Mark: 60
Time allowed: **2** Hours- (*09.00-11.00 reading time*)

B. Sc. Exam in GPHY-204 (Electric Prospecting) for Geophysics Program (Credit Hours Board)

Electric Prospecting (Relating to material taught by Dr. Mohammed Awad Ahmed)

Instruction: Answer All the following questions: Q1 (33.3%) (A, B, and C), Q2 (40%), and Q3 (26.7%)
In your answers use labeled diagrams and provide specific, named examples wherever possible. No aids allowed.

Q1 (33.3%): **(20 Marks)**

Q1-A: What these abbreviations mean **(6 Marks)**

1) CST	2) MF	3) CVES	4) Ma
5) ERT	6) PFE	7) SP	8) MRT
9) FE	10) IP	11) VES	12) SSI

Q1-B: Choose the correct answer **(9 Marks)**

1) In SP interpretation, If the ore body is ...**(1)**...(horizontal – vertical – inclined) the shape of the profile will become asymmetrical with the steepest slope and positive tail both lying on the down-dip side.

2) In ...**(2)**... (Induced Polarization – Self Potential – Resistivity) survey, when using a standard four-electrode resistivity spread in a DC mode, if the current is abruptly switched off, the voltage between the potential electrodes does not drop to zero immediately.

3) The SP anomaly of a graphite body is less than ...**(3)**... (-150 mvolt, -250 mvolt, +60 mvolt) while the sign of the Pegmatite is ...**(4)**... (negative – positive).

4) In the case of ...**(5)**... (Wenner array – Schlumberger array – Dipole dipole array) the potential electrodes are placed at a fixed spacing which is no more than one-fifth of the current-electrode half-spacing.

5) In IP survey, the measurement of a decaying voltage over a certain time interval is known as ...**(6)**... (frequency domain IP - spectral IP- time-domain IP –phase domain IP) surveying, while measurement of apparent resistivity at two or more low AC frequencies is known as ...**(7)**...(time domain IP - phase domain IP – spectral IP - frequency-domain IP) surveying.

6) The SP survey, the potential difference measured is divided by the electrode separation to give a ...**(8)**...(potential amplitude - potential gradient – mineral potential).

7) In time domain IP survey, one measure of the IP effect is the ratio Vp/Vo which is known as the ...**(9)**... (Metal Factor – Apparent Chargeability – Chargeability), and is usually expressed in terms of mill volts per volt or percent

Q1-C: Which method can be applied in the following cases (**5 Marks**)

1) Disseminated sulphide ore bodies 2) Archaeology 3) Geothermal

4) Detection of saline groundwater 5) Massive sulphide ore bodies

Q2 (40%): (**24 Marks**)

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

1) The SP filed procedure that keep one electrode fixed at a ...**(1)**... on ground and to measure the ...**(2)**... (unit **mV**) between it and the second one is called the ...**(3)**....

2) The four systems of induced polarization measurement are...**(4)**..., ...**(5)**..., ...**(6)**... and ...**(7)**....

3) The three ways in which electric current can be conducted through a rock are: ...**(8)**..., ...**(9)**..., and ...**(10)**....

4) The SP survey, in which the two porous pots electrodes are ...**(11)**...along the traverse, is called ...**(12)**... , where the potential difference measured is divided by the electrode separation to give a ...**(13)**...(unit **mV/m**).

5) The two apparent resistivities measured in frequency domain IP survey are used to determine the ...**(14)**... (unitless), ...**(15)**... (units: %), and the...**(16)**...(or siemens/m).

6) To overcome the electrolytic polarization we use: ...**(17)**..., ...**(18)**..., and...**(19)**....

7) SP anomalies are often interpreted qualitatively by profile ...**(20)**..., ...**(21)**..., ...**(22)**...(...**(23)**... or ...**(24)**...) and **contour pattern**.

Q3 (26.7%): (**16 Marks**)

Q3: Write briefly on: (**16 Marks**)

1) Plan and design a resistivity survey for groundwater investigations? (6 Marks)

2) Equipment used for electrical resistivity surveying (4 Marks)

3) Compare between 1D and 2D resistivity surveying procedures (6 Marks)

BEST WISHES

المستوى الثانى - جيوفيزياء - طريقة التنقيب الراداري والحرارية (ج ف ٥٠)

Mansoura University
Faulty of Science
Department of Geology

June,
Time allowed: 2 hours
Full Marks: 60 marks

2nd term exam in Geothermal & Radar

Answer the following questions:

First Question: (20 Marks, 5 for each)

Write on each of the following:

a) Geothermal gradient and factors affecting on it
b) The essential requirements for a geothermal system to exist
c) Sketch thermal structure (how temperatures vary with depth) of the Earth's interior
d) Radar antenna frequency and resolution

Second Question: (20 Marks, 4 for each)

Define each of the following:

a) Magnetic Permeability (μ)
b) Hot Dry Rock (HDR) geothermal system
c) Fumaroles
d) Decay of radioactive Uranium atoms (Sources of radioactive heat
e) Skin depth (δ)

Third Question: (20 Marks, 10 for each)

1- What is the GPR technique? Describe the instruments used in it? The properties of the electromagnetic waves used in it and the advantages and disadvantages of this technique.

2- What are the processes by which heat can be transferred? What is the relative importance of each process in (i) the crust, (ii) the mantle, (iii) the outer core, and (iv) the inner core

لجنة التصحيح: أ.د. حسن صبح - أ.د. ابراهيم زكى - د. شعبان شعل
د. احمد كمال

المستوى الثانى - فيزياء - نشاط إشعاعى (ف ٢٣٠)

Mansoura University Faculty of Science Physics Department El- Mansoura , Egypt		جامعة المنصورة كلية العلوم قسم الفيزياء المنصورة – مصر

Final Exam Second Semester ; 2014

Time : Two hours | **Educational Year : level two**

Date : 19/6/ 2014 | **Subjects : Radioactivity**

Mark: 60 Mark | **Course Code : phys.230**

Answer the Following Questions:-

1-(a) Complete the following decay processes by adding the missing decay particles $(\alpha, \beta, \gamma, \nu)$,and write the name of the process . **[20] Marks**

1) ${}^{3}_{1}H \rightarrow {}^{3}_{2}H + ? + ?$

2) ${}^{7}_{4}Be + ? \rightarrow {}^{7}_{3}Li + \nu$

3) ${}^{12}_{6}C^{*} \rightarrow {}^{12}_{6}C + ?$

4) ${}^{210}_{84}PO \rightarrow {}^{206}_{82}Pb + ?$

5) ${}^{19}_{10}Ne \rightarrow {}^{19}_{9}F + ? + ?$

(b) A radioactive sample contains 3.5 μg of ${}^{11}_{6}C$, which has a half-life of 20.4 min. Determine the number of nuclei present initially , and what is the activity of the sample initially and after 8h ?

2-(a) Find the Age equation for uranium dating . **[7Marks]**

(b) Three different rock samples have ratios of numbers of ${}^{238}_{92}U$ *atoms* to ${}^{206}_{82}Pb$ atoms of 0.5 , 1.0 , and 2.0 . compute the ages of the three rocks . **[5 Marks]**

(c) In beta decay, what is the significant of the neutrino hypothesis? **[8 Marks]**

Answer ONE Questions Only From The Following :-

3-(a) Write short notes on:- radioactive equilibrium, natural radioactivity. **[10 Marks]**

(b) Find the binding energy of tritium ${}^{3}_{1}H$, and the binding energy per nucleon .

(mp=1.oo727647u,mn=1.0866u,me=0.0005485749u, mass of tritium=3.016049u)

[10 Marks]

4-(a) Write the type of interaction of gamma ray with matter . **[10 Marks]**

(b) 1 MeV gamma rays are emitted by an underwater source .What effect would 2 cm of water have on the intensity of the beam.($\mu = 0.07 cm^{-1}$) **[10 Marks]**

.....