المستوى الرابع - جيوفيزياء - (ج ٤٠٢) جيولوجيا المياه وشكل الأرض

Final Exam in Geomorphology
and hydrogeology in Egypt (G402)
Academic year: 2012-2013
Date: 28/5/2013

4th Level (Geophysics program)
Time Allowed: 2 hours
Full mark: 60 marks

Answer three questions ONLY

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

a. Water table. (5 marks)

b. Hydraulic gradient. (5 marks)

c. Porosity and permeability. (5 marks)

d. Salinity content. (5 marks)

Q2- Write short notes on the following subjects: **(20 marks)**

a. Types of groundwater reservoirs. (10 marks)

b. Groundwater occurrences and its movements in non-saturated zone. (10 marks)

Q3- Mention five geophysical methods for prospecting of groundwater and discuss only one method from its principles and applications. **(20 marks)**

Q4- Compare between: **(20 marks)**

a. Influent and effluent streams. (5 marks)

b. Confined and non-confined aquifers. (5 marks)

c. Recharge and discharge areas. (5 marks)

d. The movement of water in both subsoil and capillary horizons. (5 marks)

With best wishes

Dr. Hamdi Serag El-Din

لجنة التصحيح:	أ.د. محمد عابد	أ.د. أمين غيث	أ.د. حسنى حمدان	د. حمدى سراج الدين*

المستوى الرابع جيولوجيا - جيولوجيا البترول ومصر ج ٢١
جيوفيزياء.

Mansoura University
Faulty of Science
Department of Geology
El Mansoura - Egypt

Date: June 04, 2013
Second semester – 2012/2013
4th Year Geophysics & Geology
Full Marks: 70 marks
Time allowed: 2 hrs

Exam on Petroleum Geology of Egypt (G-410)

Answer the following questions

Q1. Write on the structural evolution of the Gulf of Suez Province. (10 Marks)

Q2. Mention the most tectonic features in the Nile Delta area. (10 Marks)

Q3. Discuss the structural evolution on the north Western Desert until the Lower Cretaceous transgression only. (10 Mark)

Q4. Complete the following. (30 Marks)

a. The lithostratigraphic units in the Nile Delta area are consisting of three distinct......................1).............................2)......................3)........... (3 Marks)
b. The Sidi Salem Formation is composed mainly of .... (4 Marks)
c. Three major fault trends of different ages can be detected in the Western Desert are ....(3 Marks)
d. The Upper Cretaceous transgression (in the Western Desert) started in the .... from the .... and spread as far .... (4 Marks)
e. The second transgression (in the Western Desert) took place during the .... period and gave rise to the diagnostic ....(4 Marks)
f. The lower gravity and higher sulfur and salt content of the Belayim crude could be attributed to .... (4 Marks)
g. Petroliferous province is defined as ....(4 Marks)
h. Among the regional structure features in the Nile Delta is the...................(4 Marks)

All the best

لجنة الامتحان والتصحيح:
أ.د./ عبدالحميد طه　　أ.د. حسني غزالة　　د./ غالب عيسى*　　د. حمدي سراج الدين

المستوى الرابع - جيوفيزياء - ف ٤٣٤ فيزياء جوية

Mansoura University Faculty of Science Physics Department Subject: Physics		Second Term 4th level Program : Geophysics Date : 8/6/ 2013 Time allowed : 2 hours
Course : Physics 434(General Meteorology)		Full Mark:: 60 Mark

Answer **ALL** the following questions

[1] a- Define the air mass. What are the main factors affecting on its characteristics? **[4] Marks**

b- Explain in brief the classification of air masses according to its geographical sources. **[4] Marks**

c- What is the weather characteristics associated with cold and warm air masses? **[4] Marks**

d-Differentiate between each of the following:

i. Sea and Land breezes **[6] Marks**

ii. The cold and warm air masses. **[6] Marks**

[2] a- Define each of the following: **[6] Marks**

1. Gust. 2. Squall. 3. Wind direction.
4. Veering winds. 5. Backing winds. 6. Buys Ballot's law.

b- If air temperature at the ground surface is 32°C, and dew point temperature is 17°C. At what altitude is the base of cloud will form? If the temperature at the upper top of cloud is 5 °C, what is the cloud thickness? **[6] Marks**

c- Discuss and Draw the general circulation of atmosphere for homogenous and rotating earth illustrating on it the primary pressure belts and the prevailing wind system on the earth's surface **[12] Marks**

[3] Explain the following Terms:

a- The thunderstorm and what are the main factors for its formation?

b- The thunderstorms types.

c- The formation stages of thunderstorms with drawing. **[12] Marks**

Examiners : 1- Dr. Ashraf Saber Zakey **2- Dr. Mohamed Mansour**

GOOD LUCK

المستوى الثالث - جيوفيزياء - تكتونية ج ٢٠٧

Mansoura University
Faculty of Science
Geology Department
Date: 13 /06/2013

Second Term Exam (May 2013)
Geophysics program Third level
Subject: G 307 Tectonics
Time: 2 hours Full Mark: 60

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

Question 1: Write on the following

a. The dynamic equilibrium of the earth plant in the light of Kepler lows *(5 marks)*

b. Assembly of Pangaea. *(5 marks)*

c. Oceanic - oceanic convergence, continental - continental divergence and transform plate boundaries. Give examples of each case. *(5 marks)*

d. Hot spots and its tectonic significance. *(5 marks)*

Question 2: Write short notes on :

a. The assembly of continents is frequently associated by continental type sedimentation and formation of cool swamps *(5 marks)*

b. Saint Andres and Jordon Fault systems. *(5 marks)*

c. The distribution of the Phanerozoic volcanoes carries evidence tectonic plate movement and rotations. *(5 marks)*

d. The tectonics setting of the island arc volcanoes. *(5 marks)*

Question 3: Write short notes on :

a. Wilson tectonic cycle and give example for each event and draw sketch diagram. *(5 marks)*

b. East pacific rise and its related tectonics. *(5 marks)*

c. Tectonic of Iaptus Ocean. *(5 marks)*

d. The Ophiolite sequence and its tectonic significance. *(5 marks)*

المستوى الرابع جيوفيزياء - فيزياء المواد ف ٤٣٣

Mansoura University	Second Term Exam May/June 2013
Faculty of Science	Geophysics Program – Fourth Level
Physics Department	Physics of Materials Code No. 433ف

Total Mark [60] Each Questions [15Mark]
Time allowed TWO Hours.

Answer the following Questions:

Q.1 – a) Identify the meanings of Ceramic Materials are brittle in character [4Mark], and explain why they are immune to significant amounts of oxidation [4Mark].

b) Explain the meaning of the materials in crystalline state exhibit a well defined melting point but in amorphous state not exhibit a well defined melting point. [7Mark].

Q.2 – a) Interpret why Insulating materials have interesting electrical properties [8Mark].

b) Explain what is happened if the deformation is severe enough in crystalline materials ? [7Mark].

Q.3 – a) Discuss the types of the mechanical testing of the materials and compare between the behavior of elastic and plastic materials. [8Mark].

b) Explain why molecular materials in solid state exhibit large thermal expansion, hence interpret why rubber contracts when heated? [7Mark].

Q.4 – a) what is meant by material in superconducting state, hence discuss the principal application of superconductors. [8Mark].

b) Discuss the factors affecting the different types of atomic bonding in different materials. [7 Mark].

انتهت الأسئلة.

Prof. Dr. Mustafa Kamal

المستوى الرابع

Mansoura University Faculty of SCI Depart of Mathematics 4th year Course: Linear Programming		Second Semester 18-06- 2013 Time : 2 Hours Full Mark : 80

NO. of Questions :4 | Final Examination | NO. of Pages:2

Answer all the following Questions

Question:1 (20 marks)

If it is possible solve the following mathematical models by using the graphical method

(i)
$$\text{Minimiz} \quad Z = x_1 + 5x_2$$
$$\text{subject to} \quad -x_1 - x_2 \geq 3$$
$$x_1 + 2x_2 \leq 8$$
$$x_1, x_2 \geq 0$$

(ii)
$$\text{Minimiz} \quad Z = x_1 + x_2$$
$$\text{subject to} \quad -x_1 + x_2 \geq -6$$
$$x_1 + x_2 \leq 4$$
$$x_1, x_2 \geq 0$$

(iii)
$$\text{Maximize} \quad Z = -x_1 + 3x_2$$
$$\text{subject to} \quad x_1 + 3x_2 \leq 6$$
$$x_1 + x_2 \geq 4$$
$$-x_1 + x_2 \leq 2$$
$$x_1, x_2 \geq 0$$

(iv)
$$\text{Maximize} \quad Z = 2x_1 + 4x_2$$
$$\text{subject to} \quad x_1 + x_2 \leq 6$$
$$x_1 + x_2 = 4$$
$$x_1 + x_2 \geq 2$$
$$x_1, x_2 \geq 0$$

Question:2 (20 marks)

(a) **Use Two- Phase method to solve**

$$\text{Maximize} \quad Z = x_1 + x_2$$
$$\text{subject to} \quad x_1 + 2x_2 \leq 10$$
$$x_1 + x_2 \geq 2$$
$$x_1, x_2 \geq 0$$

(b) **Construct the dual to the primal problem and then solve the dual problem**

$$\text{Maximize} \quad Z = 6x_1 + 12x_2 - 2x_3,$$
$$\text{subject to} \quad 2x_1 + 3x_2 + 2x_3 \leq 3$$
$$-6x_1 - 4x_2 + x_3 \geq 5$$
$$x_1, x_2, x_3 \geq 0$$

Question:3 *(25 marks)*

(a) *Find the initial feasible solution to the following transportation problem by:*

(i) north-west corner rule,

(ii) Minimum cost rule,

		To I	To II	To III	To IV	Supply
From	1	7	8	16	12	15
	2	6	5	11	6	25
	3	10	13	18	14	10
	Demand	10	5	15	20	

(b) *By using Vogel's approximation method solve the above problem?*

Question:4 *(15 marks)*

Solve the following *assignment* problem:

	I	II	III	IV	V
1	25	20	24	32	26
2	28	24	21	27	29
3	18	17	19	19	20
4	32	24	27	32	30
5	26	21	29	34	25

WITH THE BEST WISHES

المستوى الرابع - جيوفيزياء بيئية وصيانة آثار - جف ٤٠٤

Mansoura University
Faulty of Science
Department of Geology

June, 18, 2013
Time allowed: Two hours
Total marks: 60 marks

Environmental Geophysics and Archaeo-geology (404 جف)

Answer the following questions

1- Compare between the following: **(20 marks)**

a) The GPR and EM survey in archaeology
b) Gradiometer and normal magnetic survey in archaeology
c) Wenner and twin arrays
d) Volume and mass susceptibility
e) Frequency and time domain in EM

2-a) Write the correct form of the following **(10 marks)**

a) Gradiometer survey based on measuring the total intensity earth's magnetic field
b) EM survey in archeology uses transmitter (Tx) of long wave length
c) Geophysical survey for archaeology is invasive, destructive and coast money
d) Moist and/or clay-laden soils and soils with high electrical conductivity, GPR penetration is deep
e) DC surveys require no direct contact with ground, and relatively of high speed than EM
f) Archaeomagnetic age dating based on induced magnetization of undisturbed archaeological remains
g) Low-frequency EM transmitter is used for shallow investigation in archaeology
h) Resistance survey for archaeology based on magnetic susceptibility of hidden artifacts
i) Heated clay (fired and bricks) give low magnetization
j) Schlumberger array is the most successful array for archaeological use

2-b) Rewrite the following sentences after doing the required corrections (if exist)
(10 marks)

a) Differentiation between saline and fresh reservoir can be detected using electrical methods since the saline water shows higher values of resistivity than fresh water.

b) Settlement is the motion of a certain surface in downward direction. It is usually found in karst terrains.

c) In geotechnical studies, the dynamic loading is the capacity of soil to support the loads applied to the ground. It means the theoretical minimum pressure which can be supported without failure

d) Subsidence is a process by which soils decrease in volume.

e) The delineation of possible areas of corrosion along an underground oil pipeline can be detected using magnetic methods

3- Answer the following two questions **(20 marks)**

a) Define the term ***"bedrock"*** from environmental and engineering points of view and discuss briefly the best geophysical methods used in locating it in case of Sediment filled valleys (at least 2 different methods)
b) Discuss briefly how can you locate joints in buried metal pipe lines?

المصححون: ا.د/ حمدى صيصه – ا.د. حاسنى غزالة - ا.د. ابراهيم كرات - د. محمد عوض