

Kafrelsheikh University  
Faculty of Science  
Geology Department



January 2018  
Time allowed: 2 hrs  
Date: 8/1/2018

Subject: Hydrogeology and Geomorphology of Egypt Grade: 4<sup>th</sup> Year Geology

Answer the following questions (Sketch maps and diagrams should be drawn whenever possible).

1- Write on the following hydro-geochemical processes (15 Marks)

- a- Seawater intrusion
- b- gravity driven groundwater flow changes in hydrochemistry
- c- Selective up take
- d- Organic matter decay

2- Sodium and salinity hazards are the major factors affecting the water quality for irrigation purposes. Discuss using different relations and diagrams. (10 Marks)

3- Answer the followings (15 Marks)

- a- Explain the continental effect on precipitation stable isotopes.
- b- Temperature, latitude, altitude, humidity and evaporation are factors affecting the Stable isotopic contents of precipitations.

4- Write short notes on the followings: (15 Marks)

- a- Point and nonpoint pollution sources with examples
- b- Factors control the groundwater pollution
- c- DRASTIC Index.

5- Answer the followings (15 Marks)

- a- Explain why the freshwater in the Nile delta aquifer is limited.
- b- Write on the upper and lower Cretaceous aquifers in Sinai.
- c- Write on the environmental factors affected Nubian Aquifer system.

Best regards

Examiner- Prof. Zenhom Salem

الفترة الصيفية / المسود الرابع / الثاني / ٢٠١٧/١٢/٢٨

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Full mark: 100 (70 written,  
10 oral, 20 Lab)

Date: December, 28<sup>th</sup>, 2017

Time allowed: 2 hrs

Subject: Basin Analysis  
(G430)

Grade: 4<sup>th</sup> Level – Geology  
Final Exam in One page

Note: support your answer by drawings.

Answer on the following questions

1) Give the reason(s) or why?

(20 Marks)

- I. The subsidence of narrow pull-apart basins is more than that of rift basins?
- II. Strike-slip basins are characterized by rapid of lateral facies changes?
- III. Rifts basins are important in hydrocarbon potentiality?
- IV. Petroleum geologists are searching for sedimentary basins that are formed by the lateral movement of plate tectonic?

2) Write a brief account on the following

(25 marks)

- I. Consequence which related to moving plates.
- II. Sediment succession of Atlantic-type margins and economic aspects of it.
- III. Application of basin analysis.
- IV. Structural features associated of subduction related basins with mention the sedimentary fill of ONE ONLY of these basins.

3) Complete the following sentences:

(4 marks)

- I. Raised linear areas which that separate between basins are characterized by the sediment cover is ----- or -----
- II. Basin modeling to aid evaluation of potential hydrocarbon reserves is based on  
(1) ----- and (2) -----

4) Define all the following:

(6 marks)

- I. Remnant basins
- II. Depocentre
- III. Basin low and high

5) Compare between the following:

(15 marks)

- I. Structure-contour map & clastic-ratio map
- II. Aulacogen basin & trench basin

Best wishes

Dr. Mohamed Elhossainy



**Answer The Following Questions**

Provide your answers with illustrations whenever possible

1. Write briefly on the current adaptation policies against the impact of climate change on the Nile Delta coastal zones?.....(5 marks)
2. Explain:.....(15 marks)
  - a. How planktonic foraminifera reveal strong evidences of climatic fluctuations?
  - b. How pollen analysis can provide evidences of paleoclimatology?
  - c. How ancient Deltas can be conductive to hydrocarbons: provide examples?
3. Define: .....(10 marks)
  - a. Glacial Budget
  - b. Avulsion
  - c. Cirques
  - d. Moraines
  - e. Outwash
4. Write on: .....(20 marks)
  - a. The main geomorphologic units of a Delta
  - b. Landforms encountered in delta plains
5. Complete:.....(10 marks)
  - a. The higher the number of bifurcation ratio, the.....
  - b. Deltas only form under certain conditions, these are:
    - .....
    - .....
    - .....
  - c. Data from pollen analysis can reveal evidence of paleoclimatology until about ..... years ago
  - d. Pleistocene epoch passed over a number of ..... cycles of glacial expansion and contraction.
  - e. The most similar delta to the Nile Delta is the ..... Delta
  - f. The vertical sequence of a coarsening-upward Delta deposits shows an upward increase of .....and..... and upward decrease in.....
6. Answer the following miscellaneous questions ..... (10 marks)
  - a. Describe with illustrations the shapes of delta drainage patterns
  - b. Mention the main items of similarities facing all common deltas