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| | TANTA UNIVERSITY<br>FACULTY OF SCIENCE<br>DEPARTMENT OF GEOLOGY | | | |
| | EXAMINATION FOR SENIORS STUDENTS OF GEOLOGY | | | |
| | COURSE TITLE: | WELL LOGGING | | COURSE CODE: GP4101 |
| DATE: | JANUARY, 2016 | SEMESTER: FIRST | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED:<br>2 HOURS |

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

**1) Compare between the followings:** **(30 Marks)**

a- The designs of Laterolog-7 and Laterolog-8 devices.

b- Normal and Lateral types of conventional electric tool.

c- Electrode arrangements of Microlaterog and Proximity log measurements.

**2) Give reasons on the followings:** **(30Marks)**

a- Fishing is important in petroleum production.

B- Trubo technique is better drilling operation than rotary one.

**4) Write short notes on:** **(45 Marks)**

a- Presentation of SP on the log. b- Mono-porosity crossplots .

c- Determination of shale volume Vsh% using graphical method.

**3) Complete the followings:** **(15 Marks)**

a- Laminar shale ..... the porosity or permeability of the formation but dispersed shale in pores markedly ....., ..... of the formation.

b- The porosity can be determined from the resistivity logs using the following equation..... ..... .....

c- Applications of caliper log are.....,.....,.....,.....

**4) Explain** the principles of measurements, uses and limitations of **Neutron, Density** and **Gamma ray** Tools **(30 Marks)**

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| EXAMINERS | PROF. DR.NADER EL GENDY | DR. SHADIA ABD EL REHIM M. SAAD |

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| | EXAMINATION FOR 4TH LEVEL STUDENTS - GEOPHYSICS | | |
| COURSE TITLE: | RESERVOIR CORRELATION & PRODUCTION | | CODE NO. 4107 |
| DATE : JANUARY, 2017 | TERM: FIRST | TOTAL ASSESSMENT MARKS: 100 | TIME ALLOWED: 2 HOURS |

**Answer the following questions:**

1- Discuss the following subjects: (20 marks)

a) Importance of casing in petroleum production.

b) Dissolved gas derive mechanism.

2- Write on the following items: (40 marks)

c) Effect of hydrocarbons on the resistivity log responses.

d) Extract primary structures from logs.

e) Identification of the reservoir rocks.

f) Arrow plot pattern.

3- Write short notes on the meaning of: facies types, facies models and facies migration. (10 marks)

4- Explain how to perform a Facies analysis. (10 marks)

5- What are the basis of correlation and what types of data are used for correlation? (10 marks)

6- Discuss briefly the delta depositional systems? (10 marks)

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| EXAMINERS | PROF. DR/ NADER ELGENDY | PROF.DR/ AHMED EL SHEISHTAWY |

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| | SEISMIC STRATIGRAPHY | | | |
| | COURSE TITLE: | SEISMIC STRATIGRAPHY | | COURSE CODE: GP4105 |
| DATE: | 10 JANUARY, 2017 | TERM: FIRST | TOTAL ASSESSMENT MARKS: 150 | TIME ALLOWED: 2 HOURS |

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I- Complete the following sentences. (15 marks)

- The four major groups of systematic reflections which distinguished on seismic sections are .....
- The four features that help to describe the reflection character of a seismic loop are .....
- Depositional sequence is .....

II-Discuss in details with drawing the internal reflection configurations. (20 marks)

III- Compare between the different types of systems tracts in seismic loop. (20 marks)

IV- Write short notes about the followings with drawing if possible: (45 marks)

a- The unconformities surfaces displayed by seismic reflections.
b- The external geometry of seismic facies units.
c- The role of seismic stratigraphy in petroleum explorations.

V- Chose the most accurate answer: (25 marks)

**1-** What is true in the effects of frequency on stratigraphic resolution?

**a)** The true stratigraphic relationships wouldn't be affect with frequency data.
**b)** The true stratigraphic relationships would be imaged with relatively high frequency data.
**c)** The true stratigraphic relationships would be imaged with relatively low frequency data.

**2-** For a reflection seismic survey, where the subsurface has an average P-wave velocity of 1000 m/s and we use a 10 ms seismic wavelet, the best resolution we could obtain is?

**a)** 1 m **b)** 2.5 m **c)** 5m **d)** 10 m

**3-** The ability to see stratigraphic changes on seismic profiles depends on:

**a)** High signal-to-noise ratio.
**b)** Seismic pulse with a broad bandwidth encompassing both low and high frequencies.
**c)** The all (a & b).

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| | EXAMINATION FOR SENIOR (LEVEL FOUR) STUDENTS OF GEOPHYSICS | | | |
| | COURSE TITLE: | HYDROGEOLOGY | | |
| DATE: | JAN, 2017 | TERM: FIRST | | TIME ALLOWED: 2HOURS |

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

**Part I: Answer the followings:**

**a- Enumerate and describe the following:** **(15 Marks)**

**i) Types of drainage systems.**

**ii) Types of electrode arrangement of resistivity logging.**

**b- Illustrate water well design and construction.** **(10 Marks)**

**c- Discuss the ordering schemes of drainage basin** **(10 Marks)**

**Part II: Answer the followings:**

**1- What iswell efficiency and how it could be determined using two different pumping test methods.** **(30 Marks)**

**2- Discuss the following in details:** **(30 Marks)**

**a-Aquifer, confined and unconfined aquifer, isotropic and anisotropic aquifer, and homogeneous and heterogeneous aquifers**

**b-Depression cone**

**c-Elevation head, pressure head, hydraulic head and depth to water.**

**3-Discuss the followings:** **(25 Marks)**

**a-Steady and unsteady pumping test conditions.**

**b-Groundwater flow net.**

**5-Write on the followings:** **(30 Marks)**

**a- One main aquifer in Sinai**

**b- Nile Delta Aquifer.**

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| EXAMINERS | PROF. DR. SHADIA T. ELKHODARY | PROF. DR. ZENHOM SALEM |