

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF GEOLOGY

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BTech GEOLOGY
2017/2018 SESSION

COURSE CODE: GEL 417

UNIT: 3

COURSE TITLE: PETROLEUM GEOLOGY

INSTRUCTIONS: ANSWER ANY FOUR QUESTIONS

TIME ALLOWED: 2 HOURS

DATE: 27 APRIL 2018

1.
 - (a) Define Petroleum.
 - (b) State the lines of evidence for the organic origin of petroleum.
 - (c) What are petroleum source rocks?

2.
 - (a) List the geological pre-requisites for petroleum accumulation in a sedimentary basin.
 - (b) Explain the reason why petroleum accumulation is sometimes absent where all the geological pre-requisites for petroleum accumulation exist.

3.
 - (a) Discuss petroleum migration process.
 - (b) Write explanatory notes on types of stratigraphic traps.

4.
 - (a) Discuss the differentiation of pore fluids from a suite of gamma ray, resistivity, neutron and density logs.
 - (b) Figure 1 is a suite of resistivity logs, neutron and density porosity logs. Study the figure and answer the following questions.
 - i. What depth intervals of the log suite contain hydrocarbon?
 - ii. What is the gas bearing interval?
 - iii. At what depth is the oil-water contact?

5. Give a detailed discussion of petroleum structural traps.

6. Discuss the process involved in the transformation and maturation of organic matter from its source rocks to petroleum.