FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF PHYSICAL SCIENCES
DEPARTMENT OF GEOLOGY
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF B.TECH GEOLOGY 2015/2016
SESSION
COURSE CODE: GEL 311   COURSE TITLE: SEDIMENTOLOGY AND SEDIMENTARY
PETROLOGY   UNITS: 3   DURATION: 2HRS.30 MIN.   DATE: 13/04/16
INSTRUCTIONS: ANSWER ANY TWO QUESTIONS FROM EACH OF SECTIONS A AND B

SECTION A

1 a. Citing three aspects, compare and contrast the different classes of sedimentary rocks.
 b. Give explanatory notes on why beach sands tend to be well sorted while sediments deposited by
     mountain streams are not?
 c. Describe the physical and chemical digenetic processes.

2 a. Describe the sequence of relative stability for sedimentary rock forming minerals.
 b. How are the Dunham and Folk classifications of carbonates different?
 c. What are some of the major differences between siliciclastic and carbonate sediments?

3 a. Using diagrams describe any two of the following sedimentary structures: groove casts, ripples and
     load casts.
 b. How would you distinguish limestone and dolostone in the field?
 c, What are the characteristics that could be used to distinguish eoalian deposits from abyssal plain rocks?

SECTION B

4(a) Briefly describe sieve analysis and state all necessary precautions to obtain accurate results.
 (b) The information obtained from grain size data for sediments P, Q and R are summarized in
     the table below.

Sample	Frequency Curve Description	Standard Deviation (σ)
P	Very steep, narrow and sharp-peaked excessively skewed to the left	Low
Q	Broad, flat, gentle slope and slightly skewed to the right	Very high
R	Relatively narrow and near symmetrical	Intermediate

Using the information provided on the table to answer the following questions:
(i) Use appropriate terms to describe the three sediment samples and compare them qualitatively
(ii) Deduce possible environment(s) of deposition of the samples
(iii) With reasons, which of the samples would you consider the best potential reservoir?
(c) Give at least four applications and importance of grain size data.

5(a) State three aspects of sedimentary texture.
 (b) With the use relevant sketches, describe the grain contacts that can be observed in hand
     specimens and in thin-sections, and relate them to the depth of burial during diagenesis.
 (c) Describe grain fabrics that you are familiar with.

6(a) Assuming that you are provided with a thin-section of a sandstone for petrographic study, describe how
you would identify the major minerals present in the sample.
 (b) Highlight other methods that can also be used to determine the mineralogical composition of
     sandstones.