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 311 **UNIT:** 3

COURSE TITLE: SEDIMENTOLOGY AND SEDIMENTARY PETROLOGY

INSTRUCTIONS: ANSWER QUESTION 1 AND ANY OTHER THREE

TIME ALLOWED: 2 HOURS 30 MIN. **DATE:** 5TH MAY, 2018

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1. The grain -size data provided in Table 1 was generated from sieve analysis of a sample in the laboratory.

Table 1. Grain size data

Mesh	Held on mm	Phi	Weight	Cumulative Weight	Cumulative Peccent	Individual Percent
18	1.0	0	4.95			
35	0.5	1.0	13.36			
60	0.25	2.0	9.55			
120	0.12	3.0	2.13			
230	0.06	4.0	0.46			
Pan	-	5.0	0.02			

a. Copy, complete and use the above table to answer the following:
i. Construct histogram, frequency and cumulative curves.
ii. Comment on the possible significance of the plots in (i)
iii. Use appropriate graph plotted in (i) and Folk and Ward formulae to interpret average grain size, standard deviation, skewness and kurtosis

b. Plot the sedimentary rock components of A, B, C, D and E in Table 2 on a TAO ternary diagram and give their possible names.

Table 2. Components of some sedimentary rocks.

Sedimentary rock	Quartz (%)	Oolites/ Calcareous pellets (%)	Microcrystalline Chert (%)
A	60	20	20
B	15	55	45
C	25	65	15
D	70	10	20
E	5	5	95

2. a. What is bioturbation and what can it tell you?

b. State three differences between dolostone and limestone.

3. a. Describe sieve analysis and state precautions necessary to obtain accurate results.

   b. Give explanatory notes on diagenesis.

4. a. State three differences between dolostone and limestone.

   b. What are the vertical facies trends in fluvial deposits.

5. a. Describe the sequence of relative stability for rock forming minerals during chemical weathering.

   b. Describe how compaction and cementation modify the physical properties of sediments.

6. a. Describe how you will study an outcrop of sedimentary rock.

   b. Comment on the mineralogical and textural maturity of sandstones.