

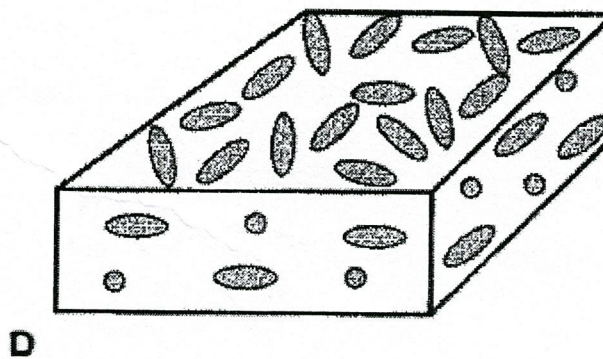
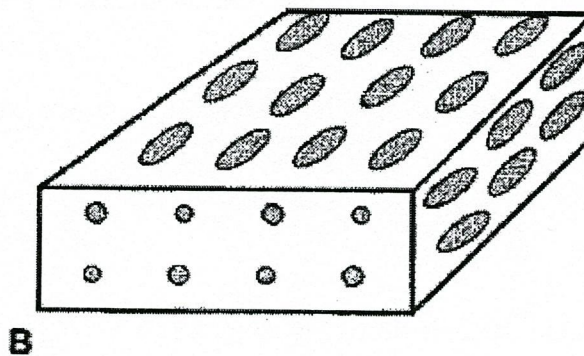
UNIVERSITY OF RUHUNA  
BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE  
Level IV Semester I - July/August 2015  
OCG 4162 – Stratigraphy and Sedimentology

Answer any four (04) questions

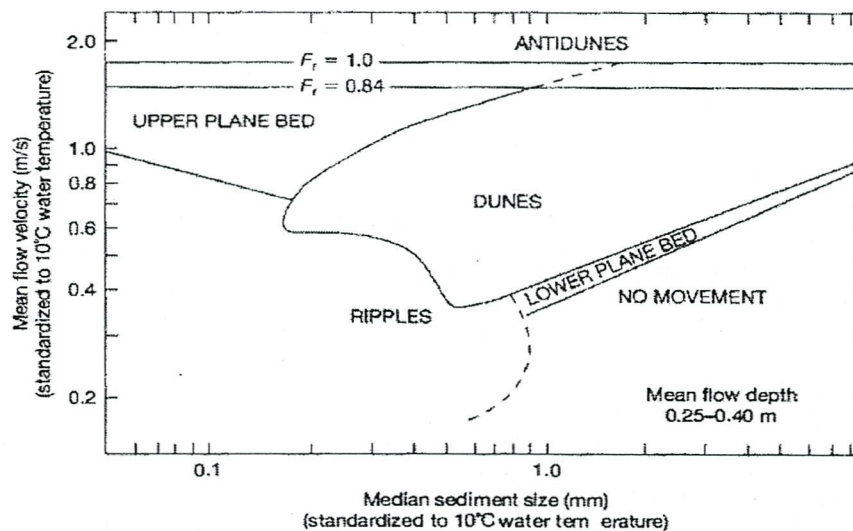
Time: 02 hours

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01. i. Suppose that you have found a siliciclastic sedimentary layer having a kurtosis of  $K < 1$ . Explain different modes of deposition of this layer.
- ii. Discuss the importance of grain size, sorting, and sphericity (roundness) on resource potential of a sedimentary layer.
- iii. What could be the paleo-depositional environments of sedimentary rock layers B and D shown below?



02. i. Briefly explain what do you understand by the terms stratification, bedforms and bedding plane markings
- ii. Summarize the relationship between bedforms formed by sediment having a mean grain sizes of 0.4 mm and 2 mm. Use the following diagram for your answer.



After: Southard, J. B., and L A. Boguchwal, 1990,

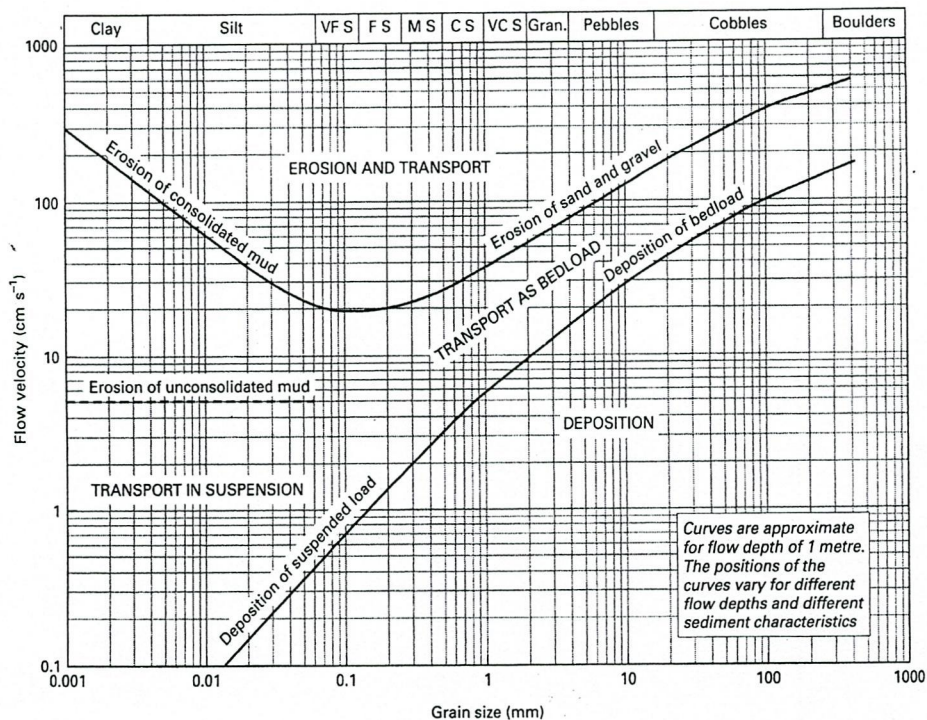
- iii. What is normal grading? In which type(s) of flow processes is it seen?

03. i. Explain rapid and tranquil flows.
- ii. Explain the bedforms formed by supercritical and subcritical flows and give examples for the instances occurring this transition.
- iii. A 1 m high water current of a stream, having a flow velocity of  $0.2 \text{ ms}^{-1}$ , enters in to still bay having a water depth of 10m. Velocity of the current reduced down to  $0.01 \text{ cms}^{-1}$ . Kinematic viscosity of the water is  $0.801 \times 10^{-6} \text{ m}^2 \text{ s}^{-1}$ .

$$\text{Reynolds no} = R_e = \frac{UL\rho}{\mu} = \frac{UL}{\nu}$$

- a) What happen to the nature of flow during the transition?

- b) Consider this stream carries unsorted sediment consists of three grain size populations. Mean grain sizes of the populations are 0.001 mm, 0.1 mm and 1 mm. Identify the nature of sediment movement at the stream using Hjulstrom diagram given below.



04. i. Explain walther's law using a suitable diagram.  
 ii. How does the sea level controls accommodation species in coastal plain?  
 iii. What is the maximum flooding surface? How do you recognize highstand system track and transgressive system tracks?
05. i. Explain the relationship between grain size and flow energy of the stream  
 ii. What are the factors that control rock weathering? Explain their role in the weathering process.  
 iii. How do sequence stratigraphic boundaries differ from lithostratigraphic boundaries? Briefly explain.

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