UNIVERSTY OF RUHUNA

BACHELOR OF SCIENCE HONOURS IN FISHERIES AND MARINE SCIENCE DEGREE

Level IV Semester 1 Examination Aug./Sep. 2018

OCG 4162 - Sedimentology and Stratigraphy
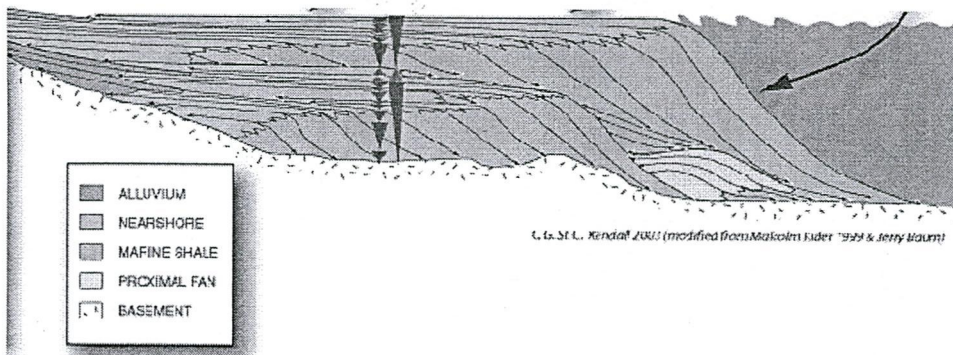
Time: 2 hours

Answer **only 04** questions

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1. a). Briefly discuss the relationship between physical and chemical weathering.

   (10 marks)

   b) Discuss the dominant weathering mechanism in Sri Lanka and how the climate facilitate it. Use Hewawasam et al (2013) to support your answer.

   (15 marks)

2. a.). Briefly discuss the sorting of sediment particles and its implications on resources exploration

   (10 marks)

   b) You are given an assignment to identify the past flood events in the Mahaweli Basin. Explain how you use your knowledge on sediment textures and sedimentary structures for this exercise

   (10 marks)

3. a.) Briefly describe sediment grain shape.

   (10 marks)

   b). Explain the formation of different sedimentary structures at varying wind speeds in a dune field having abundant sand supply.

   (15 marks)

4. a.). Explain the formation of the sedimentary structures shown in the following diagram and how they can be used in interpreting past alluvial environment

   (10 marks)
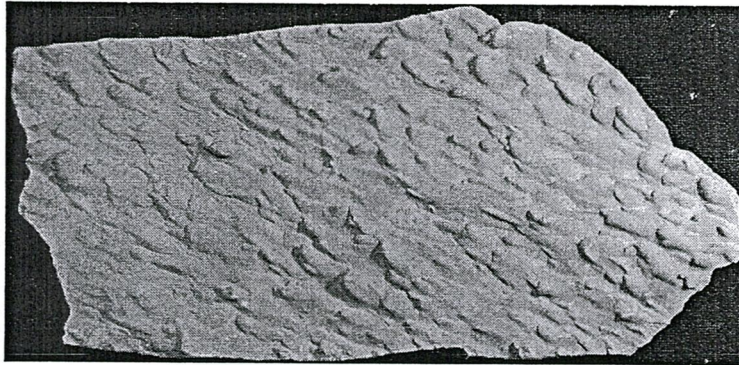
b). Discuss the formation of beach ridge plains in Sri Lanka with respect to sea level changes

(15 marks)

5. a). Briefly describe the principal types of deep marine sediment   (10 marks)

    b). Identify main sequence stratigraphic units in following diagram   (15 marks)

ALLUVIUM
NEARSHORE
MARINE SHALE
PROXIMAL FAN
BASEMENT

C. G. St C. Kendal 2003 (modified from Malcolm Rider 1999 & Jerry Baum)

6. a). Explain 02 types of unconformities with suitable diagrams

    b.) i.   List the assumptions in the Stokes Law.

        ii. Taking the above assumptions into account calculate the time taken for a 2υm
            diameter particle to settle down in a lagoon having a water depth of 3.5 m.
            $\eta = 0.9$ kgm^{-1}s^{-1}

$$\rho_s \left(\frac{4\pi r^3}{3} \right) g = Fg = 104.6 \text{ kgms} - 2 \qquad \rho_l \left(\frac{4\pi r^3}{3} \right) g = Fb = 41..8 kgms - 2$$

(15 marks)