Summer Examinations 2015

ENV210815N

Module Title: Geomorphology
Level: Five
Time Allowed: Two hours

Instructions to students:

- Enter your student number **not** your name on all answer books.
- Answer **three** questions from Section A and **one** question from Section B.
- Section B contains seen questions. These questions have been distributed to candidates two weeks prior to the examination.
- You do not need to use separate booklets for the questions in Section A, but use a separate booklet for your answer to the question from Section B. Label each booklet with the number/s of the question/s you are answering.
- Neither books nor notes may be taken into the examination.

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Section A

Answer three questions.

Question 1

a. Examine the three satellite images. In each case, suggest the main type of dune in the image, the wind regime that would have formed it and the overall direction in which sand is moving.

(9 marks)

Images from Google Earth. Yellow scale bars represent 1 km. Top of the image is North.

b. Choose one of the three dune types. Provide an explanation of the pattern of wind flow and the pattern of sand movement over the dune.

(8 marks)

Total: 17 marks

Question 2

a. Define, and write brief explanatory notes, on two of the following:

i. River Terraces.

(5 marks)

ii. Floodplains.

(5 marks)

iii. Scroll bars.

(5 marks)

b. Why is it rare for rivers to show a ‘graded’ long profile?

(7 marks)

Total: 17 marks
Question 3

a. Write brief explanatory notes on two of the following processes:

i. Rainsplash erosion  
   (4 marks)

ii. Surface wash  
    (4 marks)

iii. Rill erosion  
     (4 marks)

b. Briefly discuss three key factors that help to explain why rocks weather.  
   (9 marks)

Total: 17 marks

Question 4

a. Describe and explain two of the following:

i. Rip current  
   (4 marks)

ii. Longshore drift  
    (4 marks)

iii. Eustasy  
     (4 marks)

b. Draw a series of up to three annotated sketches to illustrate the various sedimentary deposits associated with the coastal zone. Where appropriate, note the particle size characteristics and show the dominant wave or current direction on the sketch.  
   (9 marks)

Total: 17 marks

Section A continues overleaf
Section A continued.

Question 5

a. Using diagrams as necessary, explain the development of fabric in a "lodgement till."  
   (6 marks)

b. Describe and account for two characteristics of supraglacial sediments.  
   (4 marks)

c. Identify and justify two criteria which you might enable you to recognise a glacial sediment produced under deforming bed conditions?  
   (7 marks)

   Total: 17 marks
Section B

Answer one question.

Question 6

Using examples, explain the extent to which human activity is the most important driver of geomorphological processes today. (50 marks)

Question 7

With reference to case studies, explain the role that geomorphology and the geomorphologist can play in understanding and solving real environmental problems in relation to EITHER coastal management OR river management. (50 marks)

Question 8

Assess the contention that the nature and intensity of erosion by glacial ice is controlled by the rock type of the bed. (50 marks)

End of Section B
End of Paper