Examination Period 3: 2018/19

**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** out of **five** questions from **Section A**.
- Answer **one** out of **three** questions from **Section B**.
- **Section B** is a seen question. The question has been distributed to students four weeks prior to the examination.
- **Section A** you do **not** need to use separate answer books for each question. Label the answer book clearly with the number of the questions you are answering.
- **Section B**: Begin the question in a separate answer book; label each answer book clearly with the number of the question you are answering.
- The seen paper distributed prior to the examination is **not** permitted in the examination room. A new copy will be provided.

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Section A

Answer three out of five questions.

1.  
   a. Distinguish between ‘free’ and ‘anchored’ dunes.  
      (5 marks)
   b. Explain the patterns of wind and sand flow over a transverse dune. Your explanation should include the following terms: windward slope, lee slope, compression of streamlines, separation of flow.  
      (12 marks)
   
      Total: 17 marks

2.  
   a. Explain the factors that control the size and shape of river channels.  
      (7 marks)
   b. Define the term ‘Specific Sediment Yield’ in relation to a river catchment.  
      (3 marks)
   c. Briefly explain how we can estimate the specific sediment yield of a river using either lake sediment-based reconstruction or direct river monitoring.  
      (7 marks)
   
      Total: 17 marks

3.  
   a. Define, and explain the significance of the terms, ‘erosivity’ and ‘erodibility’ in the context of soil detachment by rainsplash.  
      (7 marks)
   b. With reference to two examples, explain the role of water in mass movement processes.  
      (10 marks)
   
      Total: 17 marks

4.  
   a. Name and briefly explain three factors that control the development of landforms at the coast.  
      (9 marks)
   b. For one named coastal landform type, explain the relative importance of these three factors in its development.  
      (8 marks)
   
      Total: 17 marks
5.  
   a. Outline two mechanisms of ablation (loss of mass) in a glacial mass budget.  
      (4 marks) 
   b. Explain the distinction between a cold-based and a warm-based glacier.  
      (3 marks) 
   c. Explain the role of basal (subglacial) debris in either abrasion or quarrying (plucking) at the base of a glacier.  
      (10 marks) 

Total: 17 marks
Section B

Answer one out of three questions.

6. With reference to examples, explain how geomorphologists can contribute to the solution of environmental problems.

7. Describe and explain how climate variability during the Quaternary period has left an impact on the present-day physical landscape of the UK.

8. With reference to examples, explain how an understanding of geomorphological processes helps us to distinguish between sediments deposited by water, wind and ice.

Total: 50 marks