GEOMORPHOLOGY

24 SEPTEMBER 2013  14:30 – 16:00

Questions

Question 1

(Adapted from Feb/Mar 2013, Paper 1, Question 1.2)

Refer to FIGURE 1 which shows a drainage basin run-off system and complete the statements below.

FIGURE 1: RIVER BASIN

1.1 The process where water changes into water vapour (A) is known as ...
1.2 The place where two or more streams meet (B) in a drainage basin is called a/an ...
1.3 The area where a river originates (C) is called its ...
1.4 The process where water seeps into the ground (D) is called ...
1.5 A high-lying area (E) that separates two streams in the same drainage basin is called a/an ...

(5 x 2) (10)
Question 2

(Adapted from Feb/Mar 2013, Paper 1, Question 1.5)

Refer to FIGURE 2 which illustrates a drainage basin.

FIGURE 2: DRAINAGE BASIN

2.1 Define the term drainage basin.

2.2 Name ONE source of water for a drainage basin.

2.3 Some drainage patterns have a high density. How does climate influence the stream density of rivers that flow along the east coast of South Africa?

2.4 Give THREE reasons why drainage basins are useful to people.

2.5 Many human activities are destroying our drainage basins. Write a paragraph (approximately 12 lines) giving suggestions on how we can take better care of our drainage basins.
Question 3
(Adapted from Feb/Mar 2013, Paper 1, Question 1.6)

Refer to FIGURE 3 based on river profiles.

FIGURE 3: RIVER PROFILES

3.1 Identify the type of river profile labelled A. (1 x 2) (2)

3.2 What evidence suggests that A is a graded profile? (1 x 2) (2)

3.3 What forms the permanent base level for the river? (1 x 2) (2)

3.4 Describe the difference between the shape of the valley at B and the shape of the valley at C. (2 x 2) (4)

3.5 Give reasons for the difference in the shape of the valley at B and the shape of the valley at C. (2 x 2) (4)

Question 4
(Adapted from Feb/Mar 2013, Paper 1, Question 2.2)

Study the structural landscape in FIGURE 4. Match the letters on the FIGURE with the labels below.

FIGURE 4: STRUCTURAL LANDFORMS

4.1 Cliff
4.2 Pediplain
4.3 Mesa
4.4 Butte
4.5 Talus

(5 x 2) (10)
Question 5

(Adapted from Feb/Mar 2013, Paper 1, Question 2.5)

Refer to the flood hydrograph in FIGURE 5.

FIGURE 5: FLOOD HYDROGRAPH

5.1 Explain the term flood hydrograph. (1 x 2) (2)

5.2 Define the term lag time. (1 x 2) (2)

5.3 Identify TWO differences observed between the hydrograph of the urban drainage basin and the hydrograph of the natural drainage basin. (2 x 2) (4)

5.4 What is the value of flood hydrographs for humans? (2 x 2) (4)

5.5 Write a paragraph (approximately 12 lines) to explain the reasons for the difference in peak flow experienced in the urban drainage basin and in the natural drainage basin. (6 x 2) (12)
Question 6
(Adapted from Feb/Mar 2013, Paper 1, Question 2.6)

Refer to the fluvial features in FIGURE 6. These features are found in different courses of the river.

FIGURE 6: FLUVIAL LANDFORMS

6.1 Identify the feature labelled B.  
(1 x 2) (2)

6.2 State ONE condition necessary for the formation of feature B.  
(1 x 2) (2)

6.3 What is the value of feature B for humankind?  
(2 x 2) (4)

6.4 Explain the development of feature A.  
(2 x 2) (4)

6.5 State in which course of the river features A and B are found.  
(2 x 2) (4)