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**UNIVERSITY OF SWAZILAND**  
**DEPARTMENT OF GEORAPHY, ENVIRONMENTAL SCIENCE AND PLANNING**

**MAIN EXAMINATION:                    MAY, 2016**

**B.Sc. III**

**TITLE OF PAPER                    :            DRAINAGE BASIN STUDIES**

**COURSE NUMBER                    :            GEP 321**

**TIME ALLOWED                      :            THREE (3) HOURS**

**INSTRUCTIONS                      :            QUESTION1 IS COMPULSORY**  
**ANSWER TWO QUESTION FROM SECTION B**  
**ILLUSTRATE YOUR ANSWERS WITH**  
**APPROPRIATE DIAGRAMS**

**MARKS ALLOCATED                    :            QUESTION 1 CARRIES 40 MARKS OTHER**  
**QUESTIONS CARRY 30 MARKS EACH**

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**GEP 321: DRAINAGE BASIN STUDIES**

**(May 2016)**

**SECTION A: COMPULSORY QUESTION**

**QUESTION 1**

- (a) Discuss why the environment is considered as a legitimate user of water. (15 marks)
  - (b) 'Swaziland has plenty of water resources and yet it suffers water scarcity related problems'. Discuss the validity of this statement. (25 marks)
- (40 Marks)**

**SECTION B: ANSWER ANY TWO QUESTIONS**

**QUESTION 2**

- (a) Describe how sediment is transported in rivers. (10 marks)
  - (b) Explain two methods of measuring sediment discharge in rivers. (20 marks)
- (30 Marks)**

**QUESTION 3**

- (a) With the help of diagrams explain two methods of estimating the available water resources of a drainage basin. (20 marks)
  - (b) Explain the approaches for water conservation in a river basin. (10 marks)
- (30 Marks)**

**QUESTION 4**

- (a) Explain the importance of needs assessment in drainage basin planning. (15 marks)
  - (b) 'The statement of the environment is important in drainage basin planning' Discuss the validity of this statement. (15 marks)
- (30 Mark)**

**QUESTION 5**

'The useful life of Mnjoli dam is threatened by high sediment yield from the upstream part of the Mbuluzi catchment'. Discuss possible measures for reducing the sediment inflow into this dam.