

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

**FINAL EXAMINATION:                      DECEMBER 2006**  
**B.Sc. IV**

**TITLE OF PAPER                                      :**        **WATER RESOURCES PLANNING**

**COURSE NUMBER                                    :**        **GEP 421**

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

**INSTRUCTIONS                                     :**        **SECTION A IS COMPULSORY**  
**ANSWER ANY TWO QUESTIONS FROM**  
**SECTION B**  
**ILLUSTRATE YOUR ANSWERS WITH**  
**APPROPRIATE DIAGRAMS**

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

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED**  
**BY THE INVIGILATOR**

**SECTION A: COMPULSORY QUESTION**

**QUESTION 1**

- (a) Discuss the two major objectives in water resources planning. (20 marks)
  - (b) Explain three methods of engineering economy analysis. (20 marks)
- (40 marks)**

**SECTION B: ANSWER ANY TWO QUESTIONS**

**QUESTION 2**

Distinguish between policy and water law in the sector of water resources. (30 marks)

**QUESTION 3**

Discuss the importance of data in water resources planning. (30 marks)

**QUESTION 4**

Explain three water irrigation application methods giving the advantages and disadvantages of each. (30 marks)

**QUESTION 5**

- (a) Discuss the importance of wastewater treatment. (15 marks)
  - (b) Explain drought mitigation measures that are suitable for use in the Lowveld region in Swaziland. (15 marks)
- (30 marks)**