



University of South Australia

If you are required to use a calculator, please note the make and model here:

Calculator Make:

Calculator Model:

2006 Mid Year Examination

Student ID Number

Student ID Number																			
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Family Name	
Given Names	

Division of Information Technology, Engineering and the Environment

School of Natural and Built Environments

Course Name: Geographic Information Systems 5

Subject Area GEOE Catalogue Number 3012

Examination Day Tuesday Examination Date 20/06/2006

Examination Time 14:00 Length of Exam 3 hours

Examination Venue:	RAS/Ridley Centre
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Instructions to Candidates

All questions are of equal value. Marks for parts of questions are as indicated.

Answer any **TWO** questions from **Section A** and any **TWO** questions from **Section B**.

Please ensure the front of your answer books are completed with your name, student I.D. number, course and section of the examination.



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SECTION A

QUESTION 1 [25 marks]

- a) Describe the two broad methods for the generation of fuzzy membership functions. (12 Marks)
- b) Explain how fuzzy sets can be combined together via the use of either specific expressions such as SUM, PRODUCT, AND, OR and GAMMA, or by the use of logical rules. (13 Marks)

QUESTION 2 [25 marks]

- a) Describe the main differences between GIS applications which use a ruled based system and those which use artificial neural networks. (10 Marks)
- b) Monthly sales data for detached residential houses is available over a large metropolitan area. The factors affecting sale price are many and varied and no one model describes all the variability in the data. Discuss how an Artificial Neural Network (ANN) could be used to “learn” the relationships between the data and then be used as a mechanism to predict sale price at new locations. (15 Marks)

QUESTION 3 [25 marks]

- a) Discuss how a multi-temporal GIS differs from standard GIS. (13 Marks)
- b) What is a Generic Algorithm (GA)? Give an example of how it can be used in a GIS environment (12 Marks)



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SECTION B

QUESTION 4 [25 marks]

- a) Project integration is the process required to ensure that the various elements of a Project are properly coordinated. What are the key actions that need to be undertaken during the integration process? (10 marks)
- b) Discuss why the Project plan is a key document for monitoring and controlling a Project. What are the main elements of a Project plan? (15 marks)

QUESTION 5 [25 marks]

- a) Discuss and explain the importance of the following issues in relation to the management of a Project:
- (i) Understanding who the stakeholders are and what they want
 - (ii) Building and maintaining a cohesive team
 - (iii) Using time effectively
 - (iv) Understanding the context of project management
 - (v) Recognising and managing project team conflict
- (15 marks)
- b) What are the typical elements of a Project that will determine its cost? (10 marks)

QUESTION 6 [25 marks]

- a) Why is structured risk management important to the success of a Project? (10 marks)
- b) List the nine functions or knowledge areas of project management. (10 marks)
- c) How does the project manager achieve a balanced approach to project planning? (5 marks)