



## **FACULTY OF SCIENCE**

### **DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL MANAGEMENT & ENERGY STUDIES**

**MODULE**            **GGR3A10/GGR03A3**  
                              **GEO-INFORMATICS**

**CAMPUS**           **APK**

**EXAM**               **JULY 2019**

**DATE**   **2019.07.**

**SESSION**

**ASSESSOR(S)**

**MRS T. SCHOEMAN**  
**PROF. J. LASH**

**EXTERNAL MODERATOR**

**PROF. P. SCHMITZ**  
**(UNISA)**

**DURATION**    **3 HOURS**

**MARKS**   **100**

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**NUMBER OF PAGES: 3 PAGES**

#### **INSTRUCTIONS:**

- 1.      Answer ALL OF THE QUESTIONS**
- 2.      Number your answers clearly.**
- 3.      Answer each Section in a separate book.**
- 4.      Please note there are THREE sections.**

## SECTION A (Mrs Schoeman)

### QUESTION 1

Explain what a comprehensive GIS is. (10)

### QUESTION 2

- 2.1 Distinguish between the different spatial referencing techniques. Also indicate the advantages/disadvantages of each technique. (10)
- 2.2 Outline the importance of map projections for GIS applications. (5)

### QUESTION 3

Distinguish between the different vector data structures. Use sketches to illustrate your answer. (10)

### QUESTION 4

*“A GIS database can link all of your organization’s digital data together based on a location, such as address. This could enable all departments of an organization to have access to, and share the same data, and ensure all departments and individuals are using the most up-to-date information. Better access to better quality and time-relevant data may help your organization make better decisions”* (Frank Springer & Associates, 2014).

Explain how a GIS database can help to achieve the above. (10)

### QUESTION 5

Explain how you would detect and correct errors as part of data editing. (10)

### QUESTION 6

- 6.1 The ability to integrate data from two sources using map overlay is perhaps the key GIS analysis function. Explain how map overlays are performed in GIS. (10)
- 6.2 You are working for Gauteng Tourism and were asked to compile a map of all guesthouses that falls within a 10 km radius from the FNB Stadium. What GIS analysis would you use to do this and how does it work? (5)
- 6.3 You must determine whether there is cellphone coverage on Melville Koppies. What GIS analysis would you use to do this and how does it work? (5)

**SUB TOTAL [75]**

**SECTION B (Prof. Lash)****QUESTION 1**

- 1.1 Name and describe the three main types of analytical modelling in GIS. Include a sample geographical question for each type of model. (9)
- 1.2 You have been asked to model the growth of Johannesburg over the last 100 years. List at least four data inputs that you would need for your model. (4)

**QUESTION 2**

Name and describe the six main sources of errors that arise in GIS. (12)

**SUB TOTAL [25]**

**TOTAL [100]**

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