



## **FACULTY OF SCIENCE**

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

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

**CAMPUS**        **APK**

**EXAM**            **MAY 2019**

**DATE**            **2019.05.25**

**SESSION**   **08:30-11:30**

**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 Section A and Section B in separate books.**

## **SECTION A (Mrs Schoeman)**

### **QUESTION 1**

You work for a GIS company. A new employee is appointed, and you were asked to do the following:

- explain to this person what Geographical Information Systems (GIS) are;
- indicate the advantages and disadvantages of GIS. (10)

### **QUESTION 2**

Give an overview of the different map projections and outline the important implications thereof for GIS. (10)

### **QUESTION 3**

Explain the raster data model and structure and indicate where you would use it in GIS. Use sketches to illustrate your answer. (10)

### **QUESTION 4**

Motivate why an electronic database approach is necessary in GIS and discuss GIS database issues. (10)

### **QUESTION 5**

You are asked to develop a GIS to monitor and report on river flooding. Where would you obtain spatial and attribute data for such a GIS project? Also indicate if the data sources are primary or secondary data. Lastly, explain how you would capture the data in a GIS. (10)

### **QUESTION 6**

- 6.1 You are employed by the City of Johannesburg's urban and regional planning department. Identify THREE GIS analyses you can use in urban and regional planning. For each of the three analyses explain how it is done in GIS, motivate why you would use it and illustrate your answer by using examples. (10)
- 6.2 Explain how measurements are done in a GIS. (5)
- 6.3 Discuss the different spatial interpolation techniques you can use in GIS. (10)

**SUB TOTAL [75]**

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

- 1.1 Explain why geographers create analytical models. (3)
- 1.2 Write six geographical questions: two questions that would require a representation model; two questions that would require a suitability model; and two questions that would require a process model. (6)
- 1.2 You have been asked to create an analytic model to locate a new solar power plant in South Africa. List at least four data inputs that you would need for your model. (4)

**QUESTION 2**

Explain how errors occur in spatial data. (12)

**SUB TOTAL [25]**

**TOTAL [100]**

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