



## **FACULTY OF SCIENCE**

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

<b>MODULE</b>	<b>GGR3A10</b> GEO-INFORMATICS
<b>CAMPUS</b>	<b>APK</b>
<b>EXAM</b>	<b>SSA 2016</b>

**DATE**            **2016.07.29**

**SESSION**   **08:30 – 11:30**

**ASSESSOR(S)**

**MRS D.C. SCHOEMAN**  
**DR S. TESAMICHAEL**  
**MRS A. NGIE**

**EXTERNAL MODERATOR**

**DR E. ADAM**  
**(WITS)**

**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. (This is not limited to a definition only).  
**(15)**

**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)**

**SUB TOTAL [50]**

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## SECTION B (Mrs Ngie)

### QUESTION 1

Discuss **FOUR** of the data input methods in GIS. **(10)**

### QUESTION 2

- 2.1 Describe **TWO** spatial interpolation techniques in GIS. **(10)**
- 2.2 List **THREE** applications where surfaces analysis is required, and proceed to explain how each application is implemented. **(10)**

**SUB TOTAL [30]**

## SECTION C (Dr Tesfamichael)

### QUESTION 1

Discuss how you would select suitable areas to build new secondary schools using GIS modelling. Use at least three factors/criteria that determined the selection process. Your discussion must include and justify data types and analysis methods. **(10)**

### QUESTION 2

Consider that you are provided with a spatial dataset that does not meet the data quality standards of your company. Explain in detail three possible reasons for the unsatisfactory quality of the dataset. **(10)**

**SUB TOTAL [20]**

**TOTAL [100]**

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