

GGR3A10/03A3

2017 – Memo

SECTION A (Mrs Schoeman)

QUESTION 1

You were asked to explain to a new employee in your company what GIS is. In your explanation include a definition, as well as the different components of GIS. (10)

Definition – own words, not listing 5 approaches (3)

Components – hardware, software, spatial data, data management & analysis, people + clear explanation of each component (5)

At least 2 advantages & 2 disadvantages (2)

QUESTION 2

Distinguish between the different spatial referencing techniques. Also indicate the advantages and disadvantages of each technique. (10)

Geographical co-ordinates – explanation, adv. & disadv. (3)

UTM – explanation (1)

Rectangular co-ordinates – explanation, adv. & disadv. (3)

Non co-ordinates – explanation, adv. & disadv. (2)

Problems to all (1)

QUESTION 3

Distinguish between the raster and vector data models. Indicate in your answer which one is most suitable for satellite imagery and motivate your answer. Use sketches to illustrate your answer. (15)

Raster – explanation (4)

Raster sketch (2)

Vector – explanation, should discuss both spaghetti (simple) & topological structures (5)

Vector sketch (2)

Satellite – raster + motivation (2)

QUESTION 4

The data sources and methods of entering data for a comprehensive GIS are probably more numerous and of greater variety than in most other information systems. Evaluate this statement and indicate how data are stored in a GIS. (15)

Spatial data sources + examples (2)

- Attribute data sources + examples (2)
- Input methods – keyboard, scanning, digitizing & electronic transfer, clear explanation of each (6)
- DB, DBMS, RDBMS and advantages for GIS (5)

QUESTION 5

- 5.1 An environmental consultant asked you to assist with a GIS project that assesses the impact of mining in Gauteng. Identify and explain THREE GIS analyses that can be used. Motivate your choices. (15)
- 5.2 The ability to integrate data from two sources using map overlay is perhaps the key GIS analysis function. Do you agree with this statement? Motivate your answer. (10)

SUB TOTAL [75]

SECTION B (Me Mugwena)

QUESTION 1

Write a brief explanation of the following terms: applicability, bias, compatibility, completeness, consistency. (10)

QUESTION 2

Discuss the key problems when using GIS to model spatial processes. (10)

QUESTION 3

Define operational errors that are introduced during data encoding. (5)

Staff member responsible for Section B is no longer employed at UJ and therefore memo cannot be provided.

SUB TOTAL [25]

TOTAL [100]
