

**University of South Australia  
School of Natural and Built Environments  
Geographical Information Systems 1 (GEOE 1001)**

Time allowed 2 hours. Reading time 10 minutes.

**PART - A**

Answer all questions. Indicate the correct answer (1\*24 = 24 marks).

- 1. Data compiled at which of the following scales is likely to be the most generalised?**
  - a) 1: 50,000
  - b) 1: 100,000
  - c) 1: 62,500
  - d) 1: 250,000
- 2. Attributes of a geographic features are**
  - a) Data and text describing the characteristics of the feature
  - b) The coordinates of points specifying its location
  - c) The connection between its location and its description
- 3. In ArcView you can move selected records to the top of a table by clicking the**
  - a) Query button
  - b) Select Feature button
  - c) Promote button
  - d) Status button
- 4. Which of the following is an example of discrete data?**
  - a) Land use type
  - b) Noise pollution levels
  - c) Aspect
  - d) None of these
- 5. In a theme attribute table, each of these represents a feature.**
  - a) Record
  - b) Column
  - c) Point
  - d) Field
- 6. Which of the following Boolean operators checks if either side of the operator, but not both, has a non-zero value?**
  - a) XOR
  - b) AND
  - c) OR
  - d) NOT

- 7. A grid theme has 290 rows and 220 columns. The top is north. The lower left corner is at E 423500 N 5287150. The grid size is 100 m. The centre of the cell in the lower right corner is at**
- a) E 423500 N 5316150
  - b) E 445450 N 5287200
  - c) 445500 N 5287150
  - d) There is insufficient information OR none of the above
- 8. In ArcView tables can be successfully joined**
- a) Only if both the column values are stored as numbers
  - b) Column heading must be "id"
  - c) When the selected column headings of both the tables are identical
  - d) None of the above
- 9. In an ArcView shape file, map units**
- a) It is always in Latitude and Longitude
  - b) Are the same as measurement units
  - c) Depends on the map unit specified when it is created
  - d) None of the above
- 10. What is the process of using features in one dataset to select features in another dataset called?**
- a) Feature selection
  - b) Spatial query
  - c) Select by attributes
  - d) Interactive selection
- 11. Where is a grid theme's Cartesian coordinate origin located?**
- a) Top left of the grid
  - b) Bottom left of the grid
  - c) Bottom right of the grid
  - d) Top right of the grid
- 12. In ArcView area is always**
- a) In square kilometre
  - b) In map units
  - c) In square meters
  - d) In distance units
- 13. Basic spatial unit of grid theme is**
- a) Meter
  - b) Z-value
  - c) X, y and z value
  - d) None of the above
- 14. Two geographic features that share a common boundary are called**
- a) Tagged
  - b) Tangent
  - c) Connected
  - d) Adjacent

- 15. In ArcView slope measured in**
- Degrees
  - Both degrees and percentage slope depending on data
  - Percentage slope
  - None of the above
- 16. ArcView 'script' is**
- The window in which you edit maps
  - Description of ArcView project
  - ArcView's programming language and can be used to perform certain analysis
  - None of the above
- 17. All of the following are file extensions associated with a shapefile, except one. Which one?**
- .shx
  - .dbf
  - .shp
  - .mdb
- 18. Grid theme tables store**
- One record per grid
  - Two records per cell
  - One record per category
  - One record per cell
- 19. In raster data**
- Smaller cell size give higher resolution
  - Larger cell size higher resolution
  - Cell size does not affect resolution
  - Larger data extent give higher resolution
- 20. Which of the following is an example of 'geocoding'?**
- Calculating the shortest path between two or more nodes in a network
  - Determining the geographic location of a street address
  - Revising voting district boundaries to ensure that districts contain equal populations
  - Creating digital line features that represent the streets shown on a paper map
- 21. All map projections**
- Distort shape, area and angle
  - Distort only the shape
  - Only some projections distort shape
  - Preserve shape
- 22. Which of the following properties can be preserved everywhere on a map?**
- Distance
  - Area
  - Direction
  - Shape

**23. The beginning and ending locations for a line are called**

- a) Nodes
- b) Stops
- c) Events
- d) Points

**24. Which one is an example of ratio values?**

- a) 0 km, 5 km, 10 km
- b) 4.25 pH, 7.03 pH, 7.59 pH
- c) 1:35 a.m., 12:15 p.m., 4:02 p.m.
- d) low, medium, high

### **PART - B**

Answer all four questions (4 \* 4 = 16 marks)

1. Explain the Boolean concepts (AND, OR, XOR, NOT) with diagrams.
2. What are the unique properties of point, line and polygon features?
3. Explain the nominal, ordinal, frequency and interval measurement types. Give one example of each measurement type.
4. What is buffer and how to create a buffer in a GIS?