

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

Time allowed 2 hours plus 10 minutes reading time. Students with disability will get extra time. Contact the examination supervisor.

If you mark Part A answers on the question paper then return the question paper.
Write your name and student ID below.

Name: _____ Student ID: _____

PART - A

*Answer 25 questions. Indicate the correct answer. There may be more than one correct answer. If you answer all questions, only 25 correct answers will be counted (1 * 25 = 25 marks)*

- 1. Data compiled at which of the following scales is likely to be the most generalised?**
 - a) 1: 250,000
 - b) 1: 100,000
 - c) 1: 62,500
 - d) 1: 24,000

- 2. In ArcView, what is the descriptive database information about features called?**
 - a) Attributes
 - b) Links
 - c) Symbols
 - d) Locations

- 3. A Vector is:**
 - a) a feature with its length and width records
 - b) a line that has location, magnitude and direction
 - c) a polygon that has unique landuse characteristics
 - d) a cell with elevation value in the centre
 - e) a combination of point, line, and polygon

- 4. In ArcView you can move selected records to the top of a table by clicking the**
 - a) Select Feature button
 - b) Query button
 - c) Promote button
 - d) Status button

- 5. In ArcView how do you make a view active?**
 - a) Add it to a layout
 - b) Open the attribute table
 - c) Click the Help button
 - d) Click its title bar

- 6. What is the purpose of an ArcView project file?**
- a) To store and organise ArcView documents
 - b) To edit attribute tables
 - c) To display themes
 - d) To delete files and directories you no longer need
- 7. In ArcView 'Map units' and 'Distance units' are**
- a) One and the same
 - b) Need not be the same
- 8. What is the relationship between a theme and a view?**
- a) A theme is a spatial data and a view is a graphical data
 - b) A theme is displayed in a view
 - c) When a theme becomes active it is called a view
 - d) A theme displays many views
- 9. A 1:25,000 scale is larger than a 1:50,000 scale.**
- a) False
 - b) True
- 10. The abbreviation 'GPS' stands for**
- a) Geographical positioning system
 - b) Graphical positioning system
 - c) Global positioning science
 - d) Global positioning system
- 11. You can create a summary table only from numeric fields in a table.**
- a) False
 - b) True
- 12. To edit a table you need to.**
- a) Choose start editing from table menu
 - b) Click the Query Builder button on the table interface
 - c) Choose Table Editor from view menu
 - d) Choose Edit Table from the table menu
- 13. Which dialog allows you to modify or add field values using an expression?**
- a) Table properties
 - b) Field calculator
 - c) Query builder
 - d) Table properties
- 14. In a theme attribute table, each of these represents a feature.**
- a) Point
 - b) Column
 - c) Field
 - d) Record

- 15. A primary Key (or Field) is:**
- a) The first line in a table of attributes
 - b) The value of the attribute cell in the upper left corner of the table
 - c) The first column of the database
 - d) The column of the database that contains unique attributes
 - e) The column of the database that contains unique attributes and which can be used to link to other tables
- 16. Which of the following is an example of discrete data?**
- a) Aspect
 - b) Noise pollution level
 - c) Land use type
 - d) None of these
- 17. Which of the following Boolean operators checks if either side of the operator, but not both, has a non-zero value?**
- a) OR
 - b) AND
 - c) XOR
 - d) NOT
- 18. Two geographic features that share a common boundary are called**
- a) Adjacent
 - b) Tagged
 - c) Tangent
 - d) Connected
 - e) Linked
- 19. In ArcView you can use features in one theme to select features in another theme by using.**
- a) Theme-on-theme selection
 - b) The Select tool
 - c) The Query Builder
 - d) The Find tool
- 20. Address matching is a technique**
- a) To locate address from a line theme
 - b) To locate address from a network theme
 - c) To locate address from a point theme
 - d) None of the above
- 21. ArcView 'script' is**
- a) The window in which you edit maps
 - b) A program that can be used to perform certain task
 - c) Description of ArcView project
 - d) None of the above

22. When applying *intersection* to two GIS layers the result has:

- a) Just the geography which is common to both data sets
- b) All the geography from both data sets
- c) All the geography from both data sets and the combination of attributes from both data sets
- d) Just the geography which is common both data sets and the combination of attributes from both data sets
- e) All the geography from both data sets and the combination of the common attributes from both data sets

23. When applying *union* to two GIS layers the result has:

- a) just the geography which is common to both data sets
- b) all the geography from both data sets
- c) all the geography from both data sets and the combination of attributes from both data sets
- d) just the geography which is common both data sets and the combination of attributes from both data sets
- e) all the geography from both data sets and the combination of the common attributes from both data sets

24. Grid theme tables store

- a) One record per grid
- b) Two records per cell
- c) One record per cell
- d) One record per category

25. Any Vector theme can be converted to Raster theme

- a) True
- b) False

26. In raster data

- a) Smaller cell size give higher resolution
- b) Larger cell size higher resolution
- c) Cell size does not affect resolution
- d) Larger data extent give higher resolution

27. In ArcView Raster theme origin is

- a) Lower left corner
- b) Lower left cell centre
- c) Top left corner
- d) None of the above

28. 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 center of the cell in the lower right corner is at

- a) 445500 N 5287150
- b) E 423500 N 5316150
- c) E 445450 N 5287200
- d) There is insufficient information OR none of the above

PART - B

*Answer FIVE questions (5 * 5 = 25 marks)*

- 1) Explain the Boolean concepts (AND, OR, XOR, NOT) with diagrams.
- 2) What are the three basic spatial entities and how these are used to portray geographical feature in a GIS?
- 3) What is topology? Briefly explain either vector or raster data topology.
- 4) Describe Nominal, Ordinal, Frequency and Interval data types. Give one example of each data type.
- 5) Describe any one of the following geographical concepts with an example.
(i) Buffer (ii) Intersection.
- 6) Describe relational data model.
- 7) Explain address matching. What type of information is required for address matching?