1. INCORRECT Which three of the following questions may be best answered using a GIS?

Your Answer: Where is a particular feature found?

How does a process operate?

Correct Answers: Where is a particular feature found?

Where do certain conditions apply?

What geographical patterns exist?

---

2. INCORRECT Which of the following are key application disciplines for GIS?

Your Answer: Astronomy.

Transport.

Correct Answers: Civil engineering.

Commerce and business.

Environmental sciences.

Transport.

---

3. INCORRECT A GIS is 'a set of tools for collecting, storing, retrieving at will, transforming, and displaying spatial data from the real world for a particular set of purposes' is a well used definition of a GIS provided by:

Your Answer: Roger Chorley (1987).

Correct Answer: Peter Burrough (1986).

---

4. INCORRECT Which of the following list is the key area of GIS functionality missed out by the above definition?

Your Answer: Re-projection.

Correct Answer: Analysis.

---

5. CORRECT Which of the following is not a key concept that is part of our definition of GIS?

Your Answer: GIS can be used in all areas of modern science.

---

6. INCORRECT Which of the following are essential components of a GIS?

Your Answer: Data input and output devices such as digitizers/scanners and printer/plotters.

A computer with sufficient memory and processing power to run the software.

A fast Internet connection.

Correct Answers: Appropriate GIS software.

A visual display unit capable of high resolution colour graphical display as well as text.

Data input and output devices such as digitizers/scanners and printer/plotters.

A computer with sufficient memory and processing power to run the software.

Spatial data.

---

7. INCORRECT Which of the following is not an example of spatial data?

Your Answer: Points showing location of discrete objects.
Correct Answer: Times of particular events.

---

8. INCORRECT Aronoff (1989) classifies GIS analysis procedures into which of the following?

Your Answer: Decision making and support procedures.

Those used for storage and retrieval.

Those used to display spatial data for end-user visualization.

Correct Answers: Those used for storage and retrieval.

Modelling procedures or functions for the prediction of what data might be at a different time and place.

Constrained queries that allow the user to look at patterns in their data.

---

9. CORRECT Spatial referencing is the process of which of the following?

Your Answer: Combing attribute values with locational information.

---

10. INCORRECT

Geographical Information Science (GISc) can be defined as:

Your Answer: the application of GIS to a range of scientific disciplines.
Correct Answer: the science behind GIS.

---

11. INCORRECT Performing the same analysis in two different GIS software packages will always give the same results.

Your Answer: True
Correct Answer: False

---

12. CORRECT Human factors influence the success of GIS as a decision support tool.

Your Answer: True

---

13. CORRECT Reality can be represented in GIS as a series of layers or as objects.

Your Answer: True

---

14. CORRECT Attribute data are one type of spatial data.

Your Answer: False

1. INCORRECT Which of the following are considered key elements of a paper map?

Your Answer: Projection information.
Correct Answers: Projection information.

Annotation.

Map features (points, lines, areas, surfaces).

Scale bar or ratio.

---

2. INCORRECT Which of the following list are appropriate definitions of scale?

Your Answer: An indication of how big an object represented on the map is on the ground.
Correct Answers: The order of magnitude or level of generalization at which phenomena exist or are perceived or observed.

An indication of how big an object represented on the map is on the ground.

The ratio of a distance on a map to the corresponding distance on the ground.

---

3. CORRECT What does 1mm on a map drawn at a scale of 1:50,000 represent on the ground?

Your Answer: 50 metres.

---

4. INCORRECT How is a large city most likely to be represented on a 1:25,000 scale map?

Your Answer: As a line.
Correct Answer: As a collection of points, lines and areas.

---

5. INCORRECT Generalization is the process by which:
(check those that apply)

Your Answer: misleading or erroneous information is added to a map.

the cartographer communicates the spatial pattern and organization of real-world objects on a map.
Correct Answers: real-world features are simplified to allow them to be drawn on a map at reduced scale.

the cartographer communicates the spatial pattern and organization of real-world objects on a map.

real-world features are selected or not selected for inclusion on a map.

---

6. INCORRECT Which of the following is an example of map generalization?

Your Answer: Polygon overlay.
Correct Answer: Polygon coordinate thinning.

---

7. INCORRECT Which of the following is not a type of map projection?

Your Answer: Cylindrical.
Correct Answer: Geographic.

---

8. INCORRECT The UK's Ordnance Survey National Grid is an example of which type of projection?

Your Answer: Lambert Conformal Conic.
Correct Answer: Universal Transverse Mercator.

---

9. INCORRECT Using the UK postcode system, the postcode 'DL7 8' represents which of the following levels of this hierarchical system?

Your Answer: Postal area.
Correct Answer: Postal sector.

---

10. CORRECT What scale of measurement may be used to represent area?

Your Answer: Ratio.

---

11. INCORRECT Resolution may best be defined as:

Your Answer: the accuracy and precision of the data.
Correct Answers: the size of the smallest recording unit.

the smallest feature that can be mapped or measured.

---

12. INCORRECT What does the abbreviation GPS stand for?

Your Answer: Global Point Selection.

Correct Answer: Global Positioning System.

---

13. INCORRECT What is the name of the Russian equivalent of GPS?

Your Answer: GLASNOST.
Correct Answer: GLONASS.

---

14. CORRECT How many satellites are used in the US NAVSTAR GPS satellite constellation?

Your Answer: 24

---

15. INCORRECT What is the name of the Open GIS Consortium's XML-based universal data standard?

Your Answer: DNF.
Correct Answer: GML.

---

16. INCORRECT A line is a string of (x,y) coordinates joined together in order and connected with straight lines.

Your Answer: False
Correct Answer: True

---

17. INCORRECT Island polygons are only used to represent real world islands that are surrounded by water.

Your Answer: True
Correct Answer: False

---

18. INCORRECT A map at a scale of 1:2,000 would be suitable for planning street engineering works such as repairs to gas or water pipes.

Your Answer: False
Correct Answer: True

---

19. CORRECT A map at a scale of 1:250,000 would be suitable for navigation whilst on a mountain trek.

Your Answer: False

20.

CORRECT The mercator projection is an example of a cylindrical projection.

Your Answer: True

---

21. CORRECT The Prime Meridian runs through Moscow.

Your Answer: False

---

22. CORRECT The depth of water in a lake is an example of a ratio scale measurement.

Your Answer: True

---

23. CORRECT LiDAR data are collected using laser technology.

Your Answer: True

1. INCORRECT The vector data model is based on which of the following?

Your Answer: Pixels or grid cells.
Correct Answers: Cartesian coordinate system.

Collections of points joined by straight lines.

---

2. INCORRECT The raster data model is based on which of the following?

Your Answer: Grid cells.
Correct Answers: Tesselations.

Grid cells or pixels grouped to form spatial entities.

Grid cells.

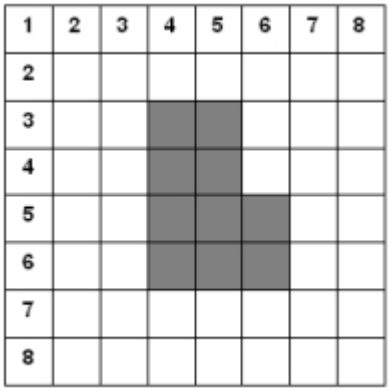
---

3. CORRECT Which of the following is NOT a raster data structure?

Your Answer: Spaghetti.

---

4. INCORRECT



For the above entity, which of the following chain encoding solutions is correct?

Your Answer: 4,6 1 N,3 E,1 S,1 E,1 S,1 W,2
Correct Answer: 4,6 1 N,4 E,1 S,1 E,1 S,1 W,2

---

5. INCORRECT Which of the following are advantages of DEMs over TINs when creating Digital Terrain Models (DTMs)?

Your Answer: DEMs use a simple data model.
Correct Answers: DEMs use a simple data model.

DEMs can directly accept inputs from digital height grids.

6. INCORRECT Which of the following are methods of identifying surface significant points in the construction of a TIN?

Your Answer: The skeleton method.
Correct Answers: The skeleton method.

The filter or VIP method.

The drop heuristic method.

---

7. INCORRECT Which of the following are applications of network analysis?

Your Answer: Spatial search and query.
Correct Answers: Flood routing.

Shortest path calculations.

Travelling salesperson problem.

---

8. INCORRECT Which of the following might be considered as the fourth dimension in GIS?

Your Answer: Scale.
Correct Answer: Time.

---

9. CORRECT Object-oriented models in GIS refer to models where data is:

Your Answer: organized into a single layer containing all entities.

---

10. INCORRECT Which of the following problems might 3D data models be applied to?

Your Answer: Landscape visualization.
Correct Answers: Hydrological models.

Landscape visualization.

Visibility analysis.

---

11. CORRECT When using a vector data model the maximum number of points possible should be used to represent a feature.

Your Answer: False

---

12. INCORRECT Run length encoding reduces the size of a raster data set on a row by row basis.

Your Answer: False
Correct Answer: True

---

13. CORRECT Using a topological data structure prevents the repetition of data for lines shared by adjacent polygons.

Your Answer: True

---

14. CORRECT Island polygons cannot be handled in a topological data structure.

Your Answer: False

---

15. CORRECT The Ordnance Survey's MasterMap data is an example of an object oriented data set which is topologically structured.

Your Answer: True

---

16. CORRECT SAR and LiDAR data have a resolution of varying from 100-150m.

Your Answer: False

---

17. INCORRECT The accuracy of a DTM created from GPS data will be low.

Your Answer: True
Correct Answer: False

---

18. CORRECT DTMs can be created by digitizing from a paper map.

Your Answer: True

---

19. INCORRECT A 'surface significant' point in a TIN model is one which can be closely interpolated from its neighbours.

Your Answer: True

Correct Answer: False

---

20. CORRECT The number of places available at a school could be used as a 'supply' variable in a network used for routing school transport.

Your Answer: True

---

21. INCORRECT A wire frame diagram is a 2.5D representation.

Your Answer: False
Correct Answer: True

1. INCORRECT What does the abbreviation DBMS stand for?

Your Answer: Data Borrowing and Movement Software.
Correct Answer: Database Management System.

---

2. INCORRECT The advantages of Standard Query Language (SQL) include which of the following in relation to GIS databases?

Your Answer: It is good at handling geographical concepts.
Correct Answers: It is good at handling geographical concepts.

It is widely used.

It uses a pseudo-English style of questioning.

---

3. INCORRECT Which of the following are characteristics of an RDBMS?

Your Answer: Queries are possible on individual or groups of tables.
Correct Answers: Tables are linked by common data known as keys.

Queries are possible on individual or groups of tables.

Data are organized in a series of two-dimensional tables each of which contains records for one entity.

---

4. INCORRECT What is a 'tuple'?

Your Answer: Another name for a table in an RDBMS.
Correct Answer: A row or record in a database table.

---

5. INCORRECT Which of the following are issues to be considered by users of large corporate GIS databases?

Your Answer: The need for concurrent access and multi-user update.
Correct Answers: The need for multiple views or different windows into the same databases.

The need for concurrent access and multi-user update.

The need to manage long transactions.

---

6. INCORRECT Which of the following are features of the object-oriented approach to databases?

Your Answer: The ability to develop database models based on location rather than state and behaviour.

Correct Answers: The ability to develop more realistic models of the real world.

The ability to represent the world in a non-geometric way.

The ability to develop databases using natural language approaches.

---

7. INCORRECT Redundancy is minimised with a computer based database approach.

Your Answer: False
Correct Answer: True

---

8. INCORRECT The relational database model is based on concepts proposed in the 1960s and 1970s.

Your Answer: False
Correct Answer: True

---

9. CORRECT A row in a database can also be called a domain.

Your Answer: False

---

10. INCORRECT A first step in database creation should be needs analysis.

Your Answer: False
Correct Answer: True

---

11. INCORRECT In entity attribute modelling a many to many relationship is represented by M:M.

Your Answer: True
Correct Answer: False

---

12. INCORRECT In a networked web based GIS all communications must go through an internet map server.

Your Answer: True
Correct Answer: False

---

13. INCORRECT In an OO database approach 'object = attributes + behaviour'.

Your Answer: True
Correct Answer: False

---

14. CORRECT In an OO database objects may inherit some or all of the characteristics of other objects.

Your Answer: True

1. INCORRECT What is the data stream?

Your Answer: The flow of data from one user to another.
Correct Answer: The process by which raw spatial data is processed into an integrated GIS database.

---

2. INCORRECT Which of the following methods may be used to input paper maps into a GIS?

Your Answer: Keyboard entry.
Correct Answers: Scanning.

Automatic digitizing.

Manual digitizing.

---

3. INCORRECT Which of the following can be a problem in manual digitizing?

Your Answer: Availability of suitable hardware and software.
Correct Answers: Inaccuracies in document registration.

Dimensional stability of source documents.

Boredom.

Hand-eye coordination.

---

4. INCORRECT Practical problems faced when scanning map documents include:

Your Answer: selection of appropriate tolerances.
Correct Answers: inclusion of unwanted information.

selection of appropriate tolerances.

possibility of optical distortion.

---

5. INCORRECT What are the common problems faced when obtaining data from secondary sources?

Your Answer: Expense.
Correct Answers: Availability of suitable data.

Unknown lineage.

Expense.

6. INCORRECT What are the three main types of data error?

Your Answer: Errors created by human error.
Correct Answers: Errors from obvious sources (e.g. incomplete maps).

Errors created during data input (e.g. digitizing).

Errors created by faulty processing.

---

7. INCORRECT Which of the following methods may be used to check attribute data for errors?

Your Answer: Checking for extreme values.
Correct Answers: Checking for impossible values.

Checking for extreme values.

Checking for internal consistency.

---

8. INCORRECT What is 'rubber sheeting'?

Your Answer: Projecting map data from one coordinate system to another.
Correct Answer: Stretching map coordinates to fit a series of known control points.

---

9. INCORRECT The Douglas-Peucker algorithm is:

Your Answer: an algorithm to triangulate a polygon.
Correct Answer: an algorithm to discretize line segments.

---

10. CORRECT Keyboard entry is no longer used in GIS projects.

Your Answer: False

---

11. CORRECT When digitising manually using a digitising table, registration of the map on the digitiser table must take place before digitising can begin.

Your Answer: True

---

12. INCORRECT In point mode digitising points are added automatically at set time or distance intervals as the user moves the cursor across the map.

Your Answer: True
Correct Answer: False

---

13. INCORRECT An experienced user should be able to digitize data with an accuracy equal to the width of the line they are digitising.

Your Answer: False
Correct Answer: True

---

14. CORRECT A cheap flatbed scanner could have an accuracy of 50 - 200 dpi.

Your Answer: True

---

15. CORRECT RINEX is the abbreviation for Remote Information Exchange format.

Your Answer: False

---

16. CORRECT DXF and NTF are examples of vector transfer formats.

Your Answer: True

---

17. INCORRECT A pseudonode is a node which can be removed from a vector dataset without affecting the topology.

Your Answer: False
Correct Answer: True

---

18. CORRECT A sliver polygon may be the result of the same line on a map being digitized twice.

Your Answer: True

---

19. CORRECT Repeated generalisation will make the boundary of a polygon more precise.

Your Answer: False

---

20. CORRECT Geocoding is the process of converting an address into a point location.

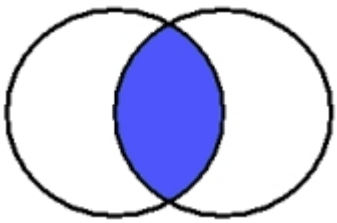
Your Answer: True

1. CORRECT What is Manhattan distance?

Your Answer: The distance between two points in a raster data layer calculated as the sum of the cell sides intersected by a straight line between them.

---

2. INCORRECT



In terms of Boolean logic, what kind of overlay is represented by the above Venn diagram?

Your Answer: XOR.
Correct Answer: AND.

---

3. INCORRECT What is reclassification?

Your Answer: The process of combing two or more data layers.
Correct Answer: The process of combining one or more data ranges into a new data range to create a new data layer.

---

4. INCORRECT Which of the following could you use a buffer operation for?

Your Answer: Determining the area within a set distance from a point, line or area feature.
Correct Answers: Determining the area within a set distance from a point, line or area feature.

Calculating the number of observations within a set distance of a point, line or area feature.

---

5. CORRECT Which of the following overlay methods would you use to calculate the length of road within a forest polygon?

Your Answer: Line-in-polygon.

---

6. CORRECT What is point-in-polygon overlay?

Your Answer: An overlay method used to determine which points lie within the boundary of a polygon.

7. INCORRECT Assuming a pair of binary raster data layers, which of the following could be used as the equivalent of a Boolean AND overlay in cartographic modelling?

Your Answer: Layer 1 – layer 2.
Correct Answers: Layer 1 – layer 2.

Layer 1 + layer 2.

Layer 1 * layer 2.

---

8. INCORRECT Which of the following are considered to be the main problems facing overlay operations in GIS?

Your Answer: Selecting threshold criteria.
Correct Answers: Selecting threshold criteria.

The Modifiable Areal Unit Problem (MAUP).

Visual complexity.

---

9. INCORRECT What is spatial interpolation?

Your Answer: The process of modelling spatial pattern from a set of one or more data layers.
Correct Answer: The process of establishing values for areas between an existing set of discrete observations.

---

10. INCORRECT Which of the following spatial interpolation techniques is an example of a local, exact, abrupt and deterministic interpolator?

Your Answer: Spatial moving average.
Correct Answer: Thiessen polygons.

---

11. INCORRECT What is the difference between slope and aspect?

Your Answer: Slope is the gradient of the fall line relative to vertical, while aspect is the direction of the fall line relative to the line of greatest slope.
Correct Answer: Slope is the gradient directly down the fall line, while aspect is the direction of the fall line relative to north.

---

12. INCORRECT What is location-allocation modelling?

Your Answer: A method of allocating resources within an area of interest using buffer analyses.

Correct Answer: A method of matching supply with demand across a network by locating a limited set of resources using network analysis.

---

13. INCORRECT

What is the possible number of combinations in which a delivery van can visit five different points on a network?

Your Answer: 3125

Correct Answer: 120

---

14. INCORRECT

For the Happy Valley ski resort example, which GIS analyses could be used to determine which hotels are within 200m of a main road?

Your Answer: Intersect overlay and buffer analysis.

Correct Answers: Proximity analysis and reclassification.

Buffer and point-in-polygon overlay.

---

15. INCORRECT

A buffer zone around a point feature will be a circle.

Your Answer: False

Correct Answer: True

---

16. CORRECT

Filtering is used on raster data to change the value of a cell based on the attributes of neighbouring cells.

Your Answer: True

---

17. INCORRECT

Filtering could be used to smooth 'noisy' data caused by problems with data collection devices.

Your Answer: False

Correct Answer: True

---

18. INCORRECT

The Jordan method used for point in polygon analysis is also known as the 'Intersect' method.

Your Answer: True

Correct Answer: False

---

19. CORRECT It is an ecological fallacy to assume that all the individuals within a defined area have the same level of income.

Your Answer: True

---

20. CORRECT Exact interpolation methods are so called because they give very accurate results.

Your Answer: False

---

21. INCORRECT The most common use of Theissen's Polygons is to create contour lines.

Your Answer: True
Correct Answer: False

---

22. CORRECT Slope can be calculated from the formula $S = b^2 - c^2$.

Your Answer: False

---

23. CORRECT 'Ray tracing' is a technique used in network analysis.

Your Answer: False

---

24. INCORRECT ZVI is the abbreviation for Zone of Varying Intensity.

Your Answer: True
Correct Answer: False

1. CORRECT What is a model?

Your Answer: A model is a simplification of reality.

---

2. INCORRECT Which of the following can be modelled using a DTM?

Your Answer: Runoff.
Correct Answers: Slope.

Solar radiation received.

Aspect.

Runoff.

---

3. INCORRECT What is a gravity model?

Your Answer: A gravity model is used to map the density of the Earth's crust.
Correct Answer: A gravity model is a distance-decay function used to compute the relative attractiveness of centres of supply relative to demand.

---

4. INCORRECT Which of the following are important steps in developing a multi-criteria evaluation (MCE) model?

Your Answer: Reclassification of criterion scores onto an interval scale.
Correct Answers: Allocation of weights.

Application of the MCE algorithm.

Standardization of criterion scores.

Selection of criteria.

---

5. INCORRECT Which of the following may be considered key problems when using GIS to model spatial processes?

Your Answer: The quality of the data used.
Correct Answers: The quality of the data used.

The implementation of the model within the GIS.

The availability of data for model validation.

Matching model complexity with process complexity.

6. INCORRECT What is PPGIS?

Your Answer: Public Planning GIS.
Correct Answer: Public Participation GIS.

7. CORRECT GIS software packages provide few process models.

Your Answer: True

8. INCORRECT A diffusion model could be used to model the spread of a forest fire.

Your Answer: False
Correct Answer: True

9. CORRECT Forecasting models look for patterns and order in complex multivariate data sets.

Your Answer: False

10. INCORRECT Gravity models use a distance-decay function which is derived from Newton's law of gravitation.

Your Answer: False
Correct Answer: True

11. INCORRECT MCE is the acronym for Multi Criteria Exploration.

Your Answer: True
Correct Answer: False

12. CORRECT An important stage is MCE analysis is allocating weights to data layers to reflect their relative importance.

Your Answer: True

13. INCORRECT Fuzzy GIS is a term used to describe output which is out-of-focus.

Your Answer: True

Correct Answer: False

---

14. CORRECT All process models need to be validated.

Your Answer: True

1. INCORRECT What is chart junk?

Your Answer: Awful pop music.
Correct Answer: Unnecessary detail around maps and diagrams.

---

2. INCORRECT Which of the following is not an example of a class interval system used in choropleth mapping?

Your Answer: User-specified.
Correct Answer: Extremities.

---

3. INCORRECT What is a cartogram?

Your Answer: A map drawn by using CAD/CAM tools.
Correct Answer: A form of map where objects are drawn using non-Euclidean coordinates.

---

4. INCORRECT Which of the following are examples of non-cartographic output?

Your Answer: GPS coordinate plots.
Correct Answers: Charts.

Tables.

Dynamically linked graphs.

---

5. INCORRECT What is a linked display?

Your Answer: A set of linked tables displayed in a RDBMS.
Correct Answer: A set of graphs and maps where items are linked in separate displays.

---

6. CORRECT What does the abbreviation VRML stand for?

Your Answer: Virtual Reality Modelling Language.

---

7. INCORRECT Which of the following are important characteristics of a SDSS?

Your Answer: They are easy to use.
Correct Answers: They are easy to use.

They incorporate spatially explicit models.

They are designed to make full use of available data.

---

8. CORRECT GIS output can include graphs and tables.

Your Answer: True

---

9. CORRECT You should always include as much information as possible in a map.

Your Answer: False

---

10. CORRECT A thematic map that displays a quantitative attribute using ordinal classes is called a choropleth map.

Your Answer: True

---

11. INCORRECT If data are divided so that an equal number of observations fall into each class this is referred to as an 'equal interval' classification system.

Your Answer: True
Correct Answer: False

---

12. CORRECT A cartogram shows the location of objects using standard Euclidean co-ordinates.

Your Answer: False

---

13. CORRECT 3D mapping can be used in socio-economic applications such as population or retail studies.

Your Answer: True

---

14. CORRECT GUI is the acronym for Graphical User Interface.

Your Answer: True

---

15. INCORRECT Maps from GIS can be output to mobile devices such as PDAs.

Your Answer: (blank)

---

16. CORRECT In a 'linked display', any action taken in one window will be reflected in other windows on the screen.

Your Answer: True

---

17. INCORRECT The development of a city could be revealed using an animated series of maps.

Your Answer: False
Correct Answer: True

1. INCORRECT What was the name of Ian McHarg's famous book on sieve mapping?

Your Answer: Natural Landscapes.
Correct Answer: Design with Nature.

---

2. CORRECT What does the abbreviation AM/FM stand for?

Your Answer: Automated Mapping and Facilities Management.

---

3. CORRECT What was SYMAP?

Your Answer: An automated cartographic package.

---

4. INCORRECT When was CGIS born?

Your Answer: 1960
Correct Answer: 1964

---

5. INCORRECT Which of the following are listed as the main achievements of CORINE?

Your Answer: The standardization of practices and methods for recording environmental data.
Correct Answers: The demonstration of the feasibility of a single environmental data for all end-user needs.

The development of similar activities in environmental data collection at the national level.

The standardization of practices and methods for recording environmental data.

---

6. CORRECT Who was the chairman of the UK's committee of inquiry into the handling of geographic information?

Your Answer: Roger Chorley.

---

7. INCORRECT Which of the following were influential figures in the development of GIS?

Your Answer: Peter Taylor.
Correct Answers: Stan Openshaw.

Mike Goodchild.

Roger Tomlinson.

Jack Dangermond.

---

8. CORRECT The relative area of polygons on a paper map could be calculated by cutting out the polygons and weighing them.

Your Answer: True

---

9. INCORRECT Paper maps can shrink and stretch.

Your Answer: False
Correct Answer: True

---

10. INCORRECT Early digitising software involved punch cards.

Your Answer: False
Correct Answer: True

---

11. INCORRECT Early cartographic mapping packages produced topographic maps.

Your Answer: True
Correct Answer: False

---

12. INCORRECT It was not until the 1980's that it was recognized that problems facing GIS were not just technical, but could also be human and organisational.

Your Answer: True
Correct Answer: False

---

13. CORRECT ArcGIS has origins in software developed in the 1960s and 1970s.

Your Answer: True

1. INCORRECT What is meant by the term 'accuracy'?

Your Answer: The lack of bias in the data.
Correct Answer: The extent to which a value approaches its true value.

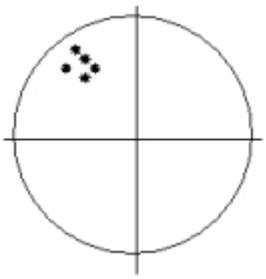
---

2. INCORRECT What is meant by the term 'precision'?

Your Answer: The lack of bias in the data.
Correct Answer: The level of detail at which data is stored.

---

3. INCORRECT



Looking at the above rifle target, how would you describe the shooting of this contestant?

Your Answer: Accurate and imprecise.
Correct Answer: Inaccurate and precise.

---

4. INCORRECT What is meant by the term 'data quality'?

Your Answer: The lineage of the data.
Correct Answer: The inherent quality of the data as characterized by its accuracy, precision, bias, level of error, etc.

---

5. INCORRECT What is a mental map?

Your Answer: An inaccurate and imprecise map.
Correct Answer: A personalized and internal representation of a particular geography.

---

6. INCORRECT Which of the following are important sources of error in cartographic products?

Your Answer: Annotation.
Correct Answers: Generalization.

Fuzzy boundaries.

Scale.

---

7. INCORRECT Which of the following may be caused by error in manual digitizing?

Your Answer: Spikes.
Correct Answers: Overshoot and undershoot.

Spikes.

Switch-backs.

---

8. INCORRECT What is positional error?

Your Answer: Error due to incorrect labelling or quantification of features.
Correct Answer: Error associated with displacement of the object from its true location.

---

9. INCORRECT What is attribute uncertainty?

Your Answer: Error due to imprecision in coordinate registration.
Correct Answer: Error due to incorrect labelling or quantification of features.

---

10. INCORRECT Which of the following errors may be introduced during rasterization of vector data?

Your Answer: Reduction in resolution.
Correct Answers: Loss of small polygons.

Changes in polygon area and/or line length.

Topological errors.

---

11. INCORRECT What is the MAUP?

Your Answer: Mapping Areal Uncertainty Process.
Correct Answer: Modifiable Areal Unit Problem.

---

12. INCORRECT What are sliver polygons?

Your Answer: Long, narrow polygons resulting from re-registering the map document between digitizing sessions.
Correct Answer: Long, thin polygons created when overlaying a common boundary that

has been digitized twice.

---

13. INCORRECT What is Monte Carlo simulation?

Your Answer: A method for predicting map bias.
Correct Answer: A method for simulating the effects of positional error on a GIS analysis.

---

14. INCORRECT Which of the following are important pieces of lineage information?

Your Answer: Age of the source document.
Correct Answers: Age of the source document.

Scale of the source document.

Resolution of the digitizer used.

---

15. INCORRECT If a 1:625,000 scale map is digitized to an accuracy of ±0.5mm, what level of error might be expected in ground units?

Your Answer: ±1250 metres.
Correct Answer: ±312.5 metres.

---

16. INCORRECT A rain gauge recoding data to 5 decimal places is producing precise data.

Your Answer: False
Correct Answer: True

---

17. CORRECT Bias is a consistent error through a dataset.

Your Answer: True

---

18. INCORRECT Cartographic generalisation will not produce errors in map data.

Your Answer: True
Correct Answer: False

---

19. INCORRECT The assumptions of the vector data model, that all features can be represented by Cartesian coordinates, leads to errors of representation.

Your Answer: False
Correct Answer: True

---

20. INCORRECT Measurements from paper maps can be regarded as 100% accurate.

Your Answer: True
Correct Answer: False

---

21. CORRECT Psychological errors are a category of digitising error.

Your Answer: True

---

22. CORRECT The mis-classification of cells in a raster data set is called 'noise'.

Your Answer: True

---

23. INCORRECT The orientation of a raster grid during rasterization will have no effect on the resulting data.

Your Answer: True
Correct Answer: False

---

24. INCORRECT Sliver polygons can lead to classification errors.

Your Answer: False
Correct Answer: True

1. INCORRECT What is meant by 'corporate GIS'?

Your Answer: A GIS developed through collaboration between different parts/departments of an organization.
Correct Answer: A GIS developed across an entire organization.

---

2. INCORRECT Which of the following may be considered operational applications of GIS?

Your Answer: Use of GIS to identify a new store location.
Correct Answers: Use of GIS to route vehicles.

Use of GIS to identify assets in need of routine maintenance.

---

3. INCORRECT Which of the following may be considered strategic applications of GIS?

Your Answer: Use of GIS to model population change and use this to reallocate government budgets.
Correct Answers: Use of GIS to model population change and use this to reallocate government budgets.

Use of GIS to decide which stores to expand and which to close.

---

4. INCORRECT Which of the following best described the CGIS?

Your Answer: Opportunistic deployment of GIS.
Correct Answer: Pioneering development of GIS.

---

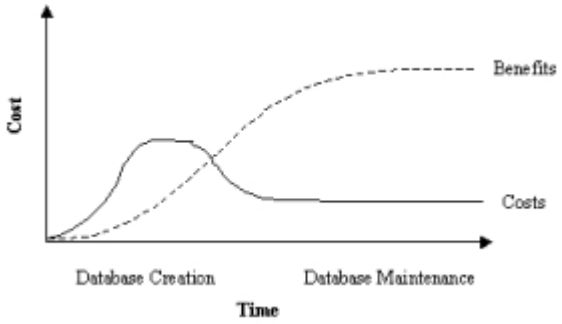
5. INCORRECT In a cost/benefit analysis, which of the following formula are correct?

Your Answer: Payback period = total cost of investment * estimated annual revenue
Correct Answer: Payback period = total cost of investment / estimated annual revenue

---

6. CORRECT Which of the following graphs is correct?

Your Answer:



---

7. INCORRECT What are the three main reasons why a GIS implementation might fail, according to Eason (1994)?

Your Answer: Government interference.
Correct Answers: Non-usability.

Organizational mismatch.

User acceptability.

---

8. INCORRECT What is 'benchmarking'?

Your Answer: The process of identifying software/hardware combinations.
Correct Answer: A technique employed to help with deciding which software package to select.

---

9. INCORRECT Which of the following are recognized implementation methods?

Your Answer: Direct conversion.
Correct Answers: Parallel conversion.

Trail and dissemination.

Direct conversion.

Phased conversion.

---

10. CORRECT In 1994 the most frequent users of GIS were in government and education.

Your Answer: True

---

11. CORRECT Operational GIS applications are concerned with the distribution of resources to gain competitive advantage.

Your Answer: False

---

12. CORRECT The GIS software type with the greatest number of users is the professional high-end product.

Your Answer: False

---

13. INCORRECT An example of a user with high application skills and high GIS skills would be a GIS analyst.

Your Answer: False
Correct Answer: True

---

14. INCORRECT OGC is the Online Geographical Centre.

Your Answer: True
Correct Answer: False

---

15. INCORRECT The British Standards Institute has an interest in standards relevant to GIS.

Your Answer: False
Correct Answer: True

---

16. CORRECT The payback period is calculated by dividing the total cost of an investment by the estimated annual revenue.

Your Answer: True

---

17. INCORRECT The creation of a digital map base is usually a small component (<10%) of the total cost of a GIS.

Your Answer: True
Correct Answer: False

---

18. CORRECT Benchmarking is used to help potential buyers make decisions between different software packages.

Your Answer: True

1. INCORRECT What is a 'rich picture'?

Your Answer: An expensive painting.
Correct Answer: A schematic view of a problem that is to be addressed.

---

2. INCORRECT What does 'crossed swords' mean in a rich picture?

Your Answer: A personal or group opinion.
Correct Answer: An expression of conflict.

---

3. CORRECT What is a 'soft systems' approach?

Your Answer: A technique of addressing unstructured problems.

---

4. INCORRECT What is a 'hard systems' approach?

Your Answer: A method for addressing unstructured problems.
Correct Answer: A method for approaching reality by attempting to rebuild part of it.

---

5. INCORRECT Which of the following are recognized phases in hard systems analysis?

Your Answer: The modelling phase.
Correct Answers: The parsing phase.

The lexical phase.

The analysis phase.

The modelling phase.

---

6. INCORRECT What is cartographic modelling?

Your Answer: The sequence of modelling of real world entities in a GIS database.
Correct Answer: A way of expressing and organizing methods by which spatial operations are selected and used to develop a GIS model.

---

7. INCORRECT What are the four stages in the development of a cartographic model?

Your Answer: Define the entities within the map layers.

Calculate descriptive statistics for each input layer.

Correct Answers: Use natural language to explain the process.

Annotate the flowchart with commands required to operationalize the process.

Identify map layers required.

Draw a flowchart of the process, including simple equations.

---

8. INCORRECT Which of the following simple equations is correct for the nuclear waste example?

Your Answer: Suitable areas = geology + high population + rail/road corridor + conservation area

Correct Answer: Suitable areas = geology – high population + rail/road corridor – conservation area

---

9. INCORRECT What is 'SLC'?

Your Answer: System Loan Costs.

Correct Answer: Systems Life Cycle approach.

---

10. CORRECT What is prototyping?

Your Answer: A method of taking user needs into account when designing GIS projects/systems.

---

11. CORRECT The 'rich picture' and 'root definition' are ideas drawn from the soft systems approach to system design.

Your Answer: True

---

12. CORRECT A physical data model describes the layout of the hardware which will make up a GIS system.

Your Answer: False

---

13. CORRECT A conceptual data model can be represented by a flow.

Your Answer: True

---

14. CORRECT During the lexical phase of hard systems analysis the study area for a project is selected.

Your Answer: True

---

15. INCORRECT Cartographic modelling is an accepted method for processing of spatial information.

Your Answer: False
Correct Answer: True

---

16. CORRECT Prototyping begins with a feasibility study.

Your Answer: False

---

17. INCORRECT SWOT (Strengths, weaknesses, opportunities and threats) analysis can be used in GIS project management.

Your Answer: False
Correct Answer: True

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18. CORRECT A PERT chart is a project management tool which illustrates how tasks depend on each other.

Your Answer: True

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19. CORRECT The checking of GIS output against reality is one way of checking whether a GIS application meets the goals set for it.

Your Answer: True