

***GIS for Environmental Applications A practical
approach 1st edition Zhu Test Bank***

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1. Which of the following statements is incorrect?
- a. Spatial data are generally collected under controlled situations.
 - b. Spatial data are generally not collected under controlled situations.
 - c. Spatial data capture the complexity of the real world in finite form through a process of conceptualisation and representation.
 - d. Spatial data record locations according to a particular georeferencing system.

Answer: a

2. Spatial data are produced by measuring
- a. locations of geographical features only
 - b. attributes of geographical features only
 - c. both locations and attributes of geographical features
 - d. none of the above

Answer: c

3. Spatial data are perfect representations of geographical features in the real world without loss of any details.
- a. true
 - b. false

Answer: b

4. The object view conceptualises geographical space
- a. as covered by continuous surfaces
 - b. as consisting of discrete objects
 - c. as containing point, line, area and surface features
 - d. as a grid of cells

Answer: b

5. The field view conceptualises geographical space
- a. as covered by continuous surfaces
 - b. as consisting of discrete objects
 - c. as containing point, line, area and surface features
 - d. as covered by a collection of points sampled in the field

Answer: a

6. Which of the following is true about large-scale maps?
- a. They show a smaller area of the Earth's surface and contain fewer details about geographical features than small-scale maps.
 - b. They show a larger area of the Earth's surface and contain more details about geographical features than small-scale maps.
 - c. They show a smaller area of the Earth's surface and contain more details about geographical features than small-scale maps.

- d. They show a larger area of the Earth's surface and contain fewer details about geographical features than small-scale maps.

Answer: c

7. Cartographic generalisation does not involve
- a. selection of geographical feature
 - b. simplification of geographical feature
 - c. classification of geographical feature
 - d. geometric measurement of geographical feature

Answer: d

8. Bairnsdale lies due east of Melbourne. This means that Melbourne and Bairnsdale lie at the same
- a. latitude
 - b. longitude
 - c. altitude
 - d. none of the above

Answer: b

9. Which of the following types of map projection would be most appropriate for representing the continent of Antarctica?
- a. cylindrical
 - b. conic
 - c. azimuthal
 - d. none of the above

Answer: c

10. Which of the following remain as straight lines in a normal conic projection?
- a. meridians
 - b. parallels
 - c. both of the above

Answer: a

11. Which of the following is incorrect?
- a. Georeferencing is to establish locations of geographical features in terms of map projections or projected coordinate systems.
 - b. Georeferencing is to register a data layer with the correct real world coordinates.
 - c. Georeferencing is to retrieve the coordinates of geographical features from a GIS database.
 - d. Georeferencing is to assign real world coordinates to spatial data.

Answer: c

12. Georeferencing is important because

- a. it allows us to quantify and map the changes in the spatial patterns of the geographical features under study over a period of time using a time series of maps
- b. it allows us to count how many water bodies are located within a forested area on a land cover map
- c. it allows us to identify adjacent land uses around an urban settlement on a land use map
- d. it allows us to identify which roads are connected with a new highway on a transport network map

Answer: a

13. Latitude and longitude are

- a. plane Cartesian coordinates in centimetres
- b. national grid coordinates in metres
- c. spherical coordinates in decimal degrees

Answer: c

14. The latitude and longitude of a point is $(-0.243, 9.286)$. Is this point located in

- a. the northern hemisphere and west to the prime meridian?
- b. the northern hemisphere and east to the prime meridian?
- c. the southern hemisphere and west to the prime meridian?
- d. the southern hemisphere and east to the prime meridian?

Answer: d

15. Datum is

- a. a piece of spatial information used to draw a conclusion or make a decision
- b. a point of reference for measuring distance
- c. a reference system that defines the size and shape of the Earth and the origin and orientation of the geographical coordinate systems used to map the Earth.
- d. a reference system that defines a projected coordinate system and its associated map projection

Answer: c

16. Coordinate values resulting from interpreting latitude, longitude, and height values based on one datum as though they were based in another datum

- a. can cause position errors of hundreds of metres
- b. can change relative positions of geographical features
- c. can make mapping impossible
- d. won't cause any position errors

Answer: a

17. UTM (Universal Transverse Mercator) is
- a. a datum
 - b. a projected coordinate system
 - c. the Transverse Mercator projection
 - d. a conic projection

Answer: b

18. A projected coordinate system defines a position in (x, y). x refers to easting and y is northing. Easting and northing coordinates are commonly measured
- a. in centimetres based on an orthogonal Cartesian coordinate system with the lower-left corner of a map as the origin
 - b. in centimetres based on a datum
 - c. in decimal degrees based on a datum
 - d. in metres based on a datum

Answer: d

19. A projected coordinate system is established based on
- a. a datum
 - b. a map projection and its parameters
 - c. a linear unit of measure
 - d. all of the above

Answer: d

20. The projected coordinate system of an UTM zone for the southern hemisphere has its origin
- a. at the intersection of the equator and the zone's central meridian
 - b. at the point which is on the equator and is 500,000m west of the zone's central meridian
 - c. at the point which is 10,000,000m south of the equator and is 500,000m west of the zone's central meridian

Answer: c

21. What are attribute data as they relate to a GIS?
- a. the type of software you need to run analysis
 - b. data that describes the characteristics of a place on the Earth
 - c. data that tells where a particular feature is on the Earth
 - d. the coordinate system of your map

Answer: b

22. A data layer may contain
- a. locational and attribute data of different types of geographical features (point, line and area features)

- b. locational and attribute data of one type of geographical features (either point or line or area features)
- c. all spatial data covering the same area

Answer: b

23. Which of the following is not true?

- a. data layers in a GIS group related geographical features by theme
- b. data layers in a GIS separate point, line and area features and group them into different layers
- c. data layers in a GIS combine point, line and area features together in individual layers
- d. data layers in a GIS can be used to develop thematic maps
- e. data layers in a GIS can be used to highlight relationships among geographical features

Answer: c

24. Which is not characteristic of discrete objects?

- a. they may include points, lines, and areas
- b. they completely cover the space
- c. they can overlap
- d. they can be counted

Answer: b

25. Vector data model is better used to store the data representing geographical features which

- a. have well-defined boundaries or edges
- b. are unidentifiable by their dimensionality
- c. are not countable

Answer: a

26. Which of the following features is better represented using spatial data based on raster data model

- a. roads
- b. administration boundaries
- c. property boundaries
- d. rainfall
- e. rain gauge stations

Answer: d

27. Raster resolution represents

- a. the size of the study area
- b. the area size of a cell

- c. the length of one side of a cell
- d. the ratio of the area size of a cell and the size of the study area

Answer: c

28. Locational data and attribute data in a geo-relational database are

- a. stored in the same data file
- b. managed using the same data structure
- c. stored separately but linked via feature ID
- d. stored separately, and need to be linked manually

Answer: c