Test Bank for Introduction to Geographic Information Systems 9th Chang

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***Introduction to Geographic Information Systems, 9e* (Chang)**
Chapter 2 Coordinate Systems

1) What is a map projection?

2) How does an ellipsoid differ from a sphere in approximating the shape and size of the Earth?

3) What does it mean by "reprojection"?

4) Explain the difference between the standard line and the central line.

5) What is a horizontal datum?

6) How can "datum shift" affect GIS work?

7) List the four types of map projections by the preserved property.

8) Name the ellipsoids that are the basis for NAD27, NAD83, and GPS, respectively.

9) Explain the difference between NAD83 and NAD83(HARN)

10) Briefly explain how a UTM zone is defined in terms of its central meridian, standard meridian, and scale factor.

11) Illustrate with a specific example the importance of map projection/coordinate system in GIS operations.

12) What is Web Mercator?

13) ArcGIS offers the following three methods for defining a coordinate system: select, import, or create a coordinate system. Explain the difference between select and import a coordinate system.

14) Describe how on-the-fly projection works.

15) All layers to be used together in a GIS operation must align spatially.

Answer: TRUE

16) A map projection transforms the geographic coordinates on an ellipsoid into locations on a plane.

Answer: TRUE

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17) A conformal projection preserves the property of:
A) relative size
B) local shapes
C) distances
D) none of these is correct

Answer: B

18) Which of the following statements is true about North American Datum (NAD)?
A) NAD83 is a newer datum than NAD27.
B) NAD83 is based on a satellite-determined spheroid.
C) Maps based on NAD83 can register spatially with maps based on NAD27.
D) All of these are correct
E) Both NAD83 is newer and NAD83 is based on.

Answer: E

19) When converted from NAD27 to NAD83, horizontal shifts of point positions in the conterminous United States can be as much as 100 meters (328 ft).

Answer: TRUE

20) Which of the following statements is not true about a meridian with a scale factor of 1?
A) The meridian must be a standard meridian.
B) There is no projection distortion along the meridian.
C) The meridian must be the line of 0° longitude.
D) None of these is correct

Answer: C

21) The center of a map projection is determined by the:
A) standard parallel and standard meridian
B) standard parallel and central meridian
C) standard meridian and central parallel
D) central parallel and central meridian

Answer: D

22) The secant case means that a cylindrical projection has _____ line(s) of tangency:
A) 1
B) 2
C) 3

Answer: B

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23) Which of the following spheroids is ground-measured, rather than satellite-determined?
A) Clarke1866
B) WGS84
C) GRS80

Answer: A

24) The longitude reading of a point in Oregon should be entered as a _____ value in a GIS package:
A) positive
B) negative

Answer: B

25) Which of the following statements is true?
A) A coordinate system is based on a map projection.
B) A map projection is based on a coordinate system.
C) Map projection and coordinate system are unrelated.

Answer: A

26) Each UTM zone covers _____ degrees in longitude:
A) 4
B) 5
C) 6
D) 7

Answer: C

27) The two common map projections used for the SPC (State Plane Coordinate) system are:
A) transverse Mercator and Albers conic equal-area
B) transverse Mercator and Lambert conformal conic
C) Lambert conformal conic and Albers conic equal-area

Answer: B

28) The central meridian of a UTM zone has a scale factor of:
A) 1
B) 0.9996
C) 0.9
D) None of these is correct

Answer: B

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29) An X-shift of -500,000 means you add 500,000 to the original X coordinate value.

Answer: FALSE
30) When converted from DMS to DD units, 46°30'00" will read:
A) 46.3°
B) 46.5°
C) 46.7°
D) None of these is correct

Answer: B

31) Which coordinate does a false easting apply to?
A) X
B) Y

Answer: A

32) The Geographic Coordinate Data Base (GCDB) is a database based on the:
A) UTM (Universal Transverse Mercator) Grid system
B) SPC (State Plane Coordinate) system
C) PLSS (Public Land Survey System)
D) None of these is correct

Answer: C

33) Which of the following coordinate systems is treated as a predefined coordinate system in ArcGIS?
A) UTM (Universal Transverse Mercator)
B) STP (State Plane)
C) IDTM (Idaho Transverse Mercator)
D) all of these are correct
E) Both UTM and STP

Answer: E

34) Which of the following statements is true?
A) Meridians are lines for measuring location in the E-W direction, and parallels are lines for measuring location in the N-S direction.
B) Meridians are lines for measuring location in the N-S direction, and parallels are lines for measuring location in the E-W direction.
C) Meridians are points for measuring location in the E-W direction, and parallels are points for measuring location in the N-S direction.
D) Meridians are points for measuring location in the N-S direction, and parallels are points for measuring location in the E-W direction.

Answer: A

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35) Which datum are GPS readings based on?
A) NAD27
B) NAD83
C) WGS84
D) CORS96

Answer: C

36) Which of the following is the standard projection for online mapping?
A) Mercator
B) Web Mercator
C) Lambert conformal conic
D) Equidistant conic

Answer: C

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