

NAME HERE

PERM # HERE

Geography 176A Final Examination 12/15/99

Answer all of the questions on the "scanner sheet" on the right of this first page by bubbling out your selection with a No. 2 pencil. Please write your name on the space above before you begin. Listen carefully to the instructions you will be given before starting the exam. In each case, give the "best" single answer.

1. Which one of the following conclusions is FALSE?

Raster systems are best for a. forestry b. land parcels c. terrain analysis d. photogrammetry e. hydrology

2. Which one of the following pairs of GIS packages utilizes a predominantly raster model for data representation?

a. ArcInfo and Maptitude b. ArcView and AutoCAD Map c. ArcView and GRASS d. GRASS and Idrisi e. MapInfo and MGE

3. The spatial equivalent of the attribute standard deviation is the:

a. standard distance b. median c. TIN distance
d. mean distance e. normalized variance.

4. Which of the following is a map element, as discussed in lecture?

a. Window b. Overlay c. Legend d. Menu e. Toolbar

5. The MEAN is

a. The sum of attribute values divided by the number of records minus one.
b. A number which diverges from a true measurement with normally distributed errors.
c. Always one less than the median.
d. The normalized variance estimate.
e. A measure of central tendency.

6. The following are members of the "critical six" GIS functional capabilities EXCEPT:

a. Data storage b. Data management c. Data Analysis
d. The User Interface e. Data display.

7. Which of the following is one of the "Big Eight" GIS packages outlined in class?

a. ATLAS GIS b. AutoCAD Map c. MicroCAM
d. Adobe PhotoShop e. Microsoft MGEPlus

8. Steven's levels of data scaling are:

a. Nominal, Sub-nominal, variate, sub-variate.
b. AutoCAD Map, ArcInfo, Caliper, ArcView 3.1
c. Data Capture, Data Storage, Data Analysis, Data Display.
d. Nominal, Ordinal, Interval, Ratio.
e. Ordinal, Rational, Text, Floating Point.

9. The visual balance of a map design is affected by:

a. The map's visual center. b. The layout of map elements within the neat line.
c. The relative "weight" of the symbols. d. The hues, saturations, and intensities used on the map.
e. All of these factors and more.

10. Which of the following is NOT a reasonable method for mapping areal data?

a. Choroplethic b. Proportional Symbol. c. Area qualitative. d. Hypsometric e. Stepped Surface

11. A map that shows numerical data (but not simply "counts") for a group of regions by (i) classifying the data into classes and (ii) shading each class on the map is called:

a. raster b. vector c. Isometric d. Choroplethic e. Isopleth

1	a b c d e
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3	a b c d e
4	a b c d e
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33	a b c d e
34	a b c d e
35	a b c d e
36	a b c d e
37	a b c d e
38	a b c d e
39	a b c d e
40	a b c d e

12. Which of the following is useful to consider when selecting a GIS?

- a. software cost
- b. system upgradeability
- c. ease of software installation
- d. user training
- e. All of these and more.

13. A case study of GIS use not covered in class was:

- a. The Channel Fisheries GIS, used for site selection for Commercial Abalone Fishing.
- b. Selecting sites for ocean dumping off of New York City.
- c. A GIS to support community environmental decision making in Brooklyn.
- d. Lyme disease analysis in Westchester County.
- e. Gypsy moth monitoring and treatment in Michigan.

14. The four revolutions discussed in class for the future of GIS did NOT include:

- a. The workstation revolution.
- b. The PC revolution
- c. The mobility revolution
- d. The post-modern revolution
- e. The Network revolution.

15. Which definition is that of a map?

- a. Location in geographic space given with respect to a known origin and standard measurement system such as a coordinate system.
- b. The science of measuring the size and shape of the earth and its gravitational and magnetic fields.
- c. A GIS data format used by the software to store the data within the program, and in a manner unsuitable for use by other means.
- d. A depiction of all or part of the earth or other geographic phenomenon as a set of symbols and at a scale whose representative fraction is less than 1:1.
- e. A table of numbers with a given number of rows and columns.

16. What is: The ability of a data base management system or GIS to get back from computer memory records that were previously stored there?

- a. Data storage
- b. Data Analysis
- c. Data Retrieval
- d. Data Display
- e. Data Compression

17. What is: “The amount left when the observed value of the dependent variable has subtracted from it that predicted by a model, in the units of the dependent variable?”

- a. Data model
- b. r-squared
- c. Linear regression
- d. residual
- e. Left-overs

18. What is: The ability of software to move onwards to new version with complete support for the data, scripts, functions and so forth, of earlier versions.?

- a. Software
- b. UNIX
- c. topology
- d. upward compatibility
- e. linear regression

19. Which statement is FALSE?

- a. The extremes of an attribute are the highest and lowest values, and the range is the difference between them in the units of the attribute.
- b. A histogram is a two dimensional plot of attribute values grouped by magnitude and the frequency of records in that group, shown as a variable length bar.
- c. Accuracy is determined by testing measurements against an independent source of higher fidelity and reliability.
- d. A mathematical version of the normal distribution can be used to compute probabilities associated with measurements with known means and standard deviations.
- e. Descriptions of geographic properties like shape, pattern and distribution are often verbal, but quantitative measures are incorporated into most GIS software.

20. Which of the following is an example of cartographic convention?

- a. Using ArcView's Layout Window
- b. Using a data model
- c. Using isoline maps.
- d. Using green to show forest areas.
- e. an annual meeting of the American Cartographic Association.

21. A buffer operation performed on a point selects an area shaped like a:

a. Rectangle b. Square c. Triangle d. Circle e. Hexagon.

22. During the 1980s:

- a. Spreadsheet software was ported to the microcomputer.
- b. The relational database manager disappeared from the world of DBMS.
- c. Each GISs began to develop its own specialized user interface.
- d. GISs developed more device dependence.
- e. ArcView 3.1 was released.

23. An example of a user interface metaphor in existing computer operating systems and GISs is:

- a. The window.
- b. The Web gateway.
- c. the telephone book
- d. The desktop.
- e. The table top.

24. Which of the following explains why federally generated digital map data in the USA are available at minimal cost to the GIS user?

- a. The copyrights are still owned by the British.
- b. The data were produced largely by private corporations.
- c. The data is public information covered by the Freedom of Information Act.
- d. The data are owned by Bill Gates.
- e. Because Al Gore invented the Internet.

25. The ability of software to run with little difference from a user's perspective on any computer or on any specialized device, such as a printer or plotter is called:

- a. Device independence
- b. Desktop metaphor.
- c. Difference of means
- d. DBMS
- e. GUI

26. For a large number of records distributed with random errors in their measurement, the histogram resembles a _____, and is symmetrical about the _____.

- a. bell curve, mean
- b. variance, binomial
- c. fractal, origin
- d. variogram, variance
- e. bell curve, datum.

27. The size of a raster data set is:

- a. The bit depth plus the number of rows times the number of columns in the header.
- b. The number of rows times the numbers of columns times the bit depth times the size of the header.
- c. The bit header plus the rows and columns depth.
- d. The number of rows times the numbers of columns times the bit depth, plus the size of the header.
- e. The number of rows times the numbers of columns times a bit, plus the depth of the header.

28. In the case study on ocean dumping in New York Bight, the units of the final map overlay were:

- a. meters
- b. miles
- c. Fish catch
- d. gravel particle circumference
- e. dollars

29. In the case study on ocean dumping in New York Bight, the first solution to the siting problem used map overlay based on:

- a. Dollar values of fish catches.
- b. Distance to the Hudson Canyon.
- c. Number of gypsy moth larvae in the traps.
- d. Number of five key factors, identified by experts, present.
- e. Bathymetry.

30. Physical model support, the DBMS, address matching, masking and cookie cutting are functions that are part of which if the critical six GIS functions?

- a. data capture
- b. data storage
- c. data management
- d. data retrieval
- e. data display

31. Interpolation, optimal path selection, geometric tests, and slope calculation are functions that are part of which if the critical six GIS functions?

- a. data analysis
- b. data storage
- c. data management
- d. data retrieval
- e. data display

32. Examples of line maps in GIS include:

- a. flow map b. choropleth c. dasymmetric d. proportional symbol e. cut and paste

33. Color, as used in GIS:

- a. Is the simplest display component
b. Consists of hue, chroma and color.
c. Consists of hue, saturation and intensity.
d. Consists of red, magenta, and cyan.
e. Is a continuous tonal variation of gray.

34. A reference map can symbolize:

- a. Point features b. Line features
c. Area features d. Volume feature
e. All of the above

35. The GIS analysis example used in lecture formulated which mathematical model:

- a. gender ratio = f(longitude)
b. logitude = f(gender ratio)
c. gender ratio = f(latitude)
d. gender ratio = f(residuals)
e. gender ratio = f(fish catch)

36. Geographic properties are:

- a. size, distribution, pattern, contiguity, neighborhood, shape, scale and orientation.
b. case studies, methods, analysis and display.
c. the big eight
d. the critical six
e. The critical eight

37. The best tool for examining spatial distributions for pattern are:

- a. ArcView b. AutoCAD Map c. Spatial Analysis d. Linear regression e. Your eyes.

38. Typical data input or data capture functional capabilities for GIS DO NOT include:

- a. Digitizing. b. Scanning c. Mosaicing d. Editing e. Map Overlay

39. The part of a Arcview GIS that shows small icons that initiate tasks is called:

- a. The toolkit definition b. The ArcNode c. The DBMS d. The Toolbar e. The Data Model

- 40. SQL is:** a. A data base management system. b. A cordinate system with zones c. A GIS in the big 8 d. The structured query langauge, a standard way to query data bases e. One of the critical six GIS functions.

Word Definitions: Give dictionary style definitions of the following terms. Use complete sentences.

Turn in this sheet separately from the scanner sheet. Write your answers directly on this sheet.
START BY WRITING YOUR NAME HERE _____

41. geographic information system

42. spatial analysis

43. data dictionary

44. map element

45. hue

46. Channel Islands GIS

47. choropleth map

48. interval data

49. map algebra

50. mobile computing
