

KATHMANDU UNIVERSITY
End Semester Examination
August/September, 2017

Mark Scored :

Level : B. E.
Year : II

Course : GEOM 204
Semester : II

Exam. Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date :

SECTION "A"
[20 Q. × 0.5 = 10 marks]

Choose the most appropriate answer from the given choices.

1. A process based model is where,
 - a. Process is followed
 - b. Procedure makes difference
 - c. Batch based operation is used
 - d. Random assignment of operation is performed
2. Which of the following is *untrue* while performing 'restrict' operators
 - a. Selection is based on row
 - b. Rows and column order is not vital
 - c. Selection is based on column
 - d. Splits table horizontally
3. A network element with 'turns' has following properties
 - a. The cost associated with traversing a network link
 - b. The number of possible turns defined by n^3
 - c. The utilization of a resource by an entity
 - d. Establishes relationship between network links
4. A spatial operation is said to be neighbourhood when
 - a. The output value is determined by the location of cell
 - b. The output value depends on nearby location
 - c. The output value depends on block of nearby location
 - d. Data from the same layer is used to derive statistics
5. The principal purpose of orography is to
 - a. Assess the impact of geology on landscape
 - b. Display elevation by the use of contours
 - c. Describe undulation of terrain
 - d. Provide information about topographic processes
6. Overall accuracy is defined as
 - a. Probability that a randomly selected point is correctly classified
 - b. Probability that a randomly selected point is correctly identified
 - c. Probability that the map is better than chance
 - d. Probability that the map is error free

7. Vagueness is defined as
 - a. The result of error
 - b. Lack of information
 - c. A measure of the difference between the data
 - d. Doubt about the information which is recorded at location

8. Which of the following is true in polygon-in-polygon overlay operation
 - a. Vertices are formed at the coincident polygon
 - b. Nodes are formed at the coincident location
 - c. Geographic data from polygon features are incorporated into the lines
 - d. Polygon take the attributes of the coincident point

9. Which of the following is *untrue*
 - a. Small errors in measurement is diminished by scale factor
 - b. Larger scale map has less detail
 - c. Larger scale maps have less geometric error
 - d. Maps are reported without scale

10. A graphical vector structure contains

a. No explicit information about topology	b. Only about adjacency and containment
c. Explicit topological rules	d. d. Adjacent relation between features

11. Small polygons results of the combination of two polygons are known as.

a. Errors	b. Sliver	c. Silver	d. Small polygons
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12. A surface in GIS manages geographic information from.

a. Features	b. Database	c. Field	d. Raster and vectors
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13. Total no of houses inside a VDC can be found using one of the operation

a. Point over point	b. Polygon over line
c. Line over line	d. Point over polygon

14. Which of the following is true in "heads-up" digitizing
 - a. "Meta" (or "control") points must be set up at the edges of the map before beginning.
 - b. digitizing is performed on a computer screen using an image as a backdrop.
 - c. A mouse is moved across the mesh of a map taped to a digitizing table to capture points.
 - d. Only lines and polygons can be created; points must, therefore, be created using tabular x/y data.

15. Which of the following is **not** the characteristics of data quality?

a. Completeness	b. Attribute accuracy
c. Positional accuracy	d. Size of irregular polygons

16. Epsilon bands are

a. Standard error	b. 90 %of points fall within 1 CSE
c. Width of points	d. Width of road or polygon

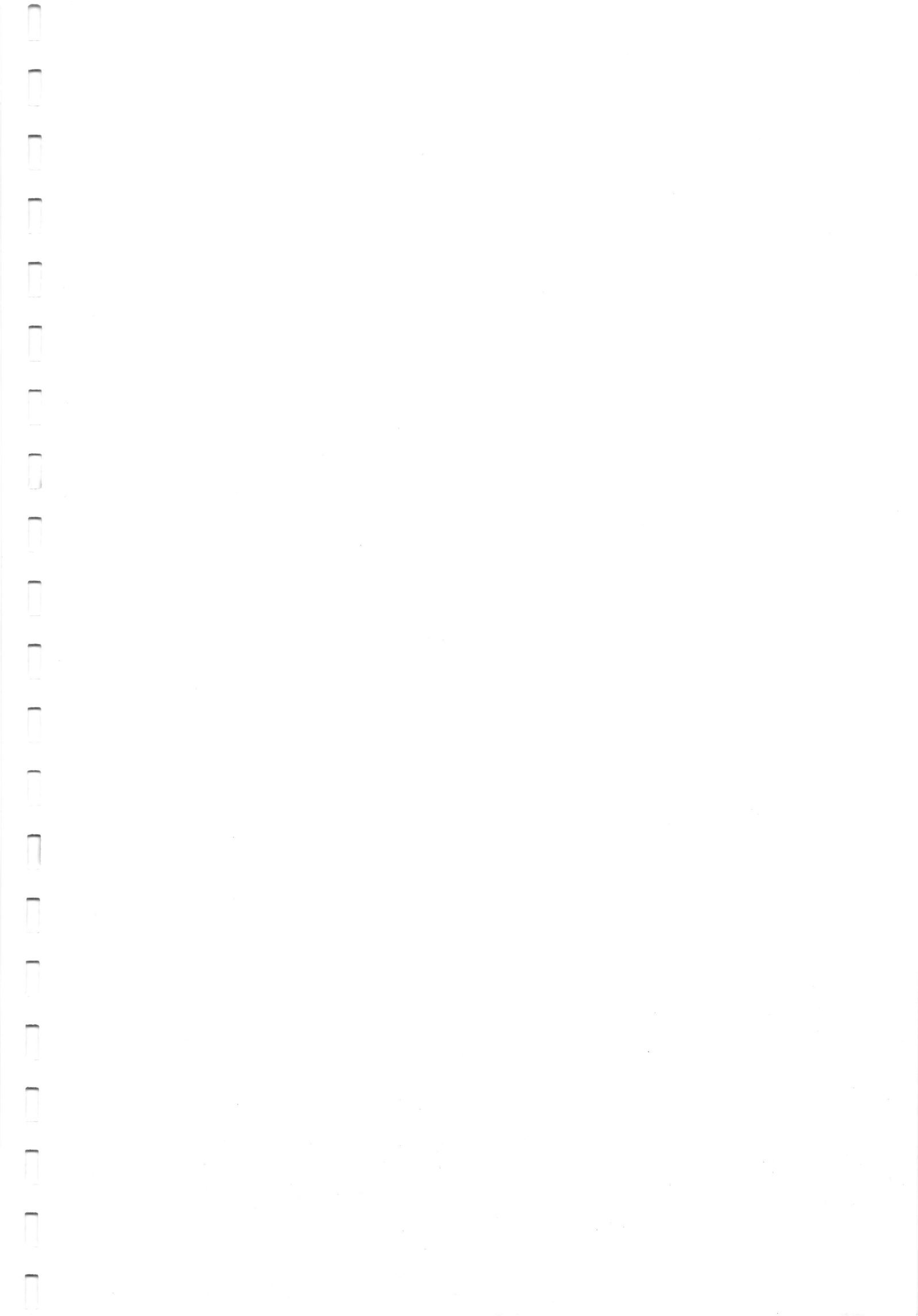
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17. Which of the following is true for map transformation
 - a. It is an analytical, formula-based conversion between coordinate systems
 - b. Statistical fitting process cannot be used during map transformation
 - c. It generally employs a linear equation to convert coordinates from one cartesian coordinate system to another
 - d. Map transformation is similar to modified UTM coordinate system

18. Which of the following is true with minimum distance-streaming mode of digitization
 - a. Points are collected automatically as the operator traces along a line or polygon boundary
 - b. A new point is not recorded unless it is more than some minimum threshold distance from the previously digitized point
 - c. The lower the threshold better is the result
 - d. Larger the threshold, more reliable is the result

19. Which is true for random sampling
 - a. Minimizes the effect of biases in sample design
 - b. Ensure greater evenness of coverage across the sample frame
 - c. Allows for the equal abundance of different phenomena on the Earth's surface.
 - d. All of above

20. Inverse distance weighting with search radius of 12 is
 - a. Global interpolation
 - b. Random interpolation
 - c. Local interpolation
 - d. None



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Level : B. E.
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Course : GEOM 204
Semester : II
F. M. : 40

SECTION "B"

[8Q × 5 = 40 marks]

Attempt *ANY EIGHT* questions.

1. Which two characteristics signify a topological data structure, and what do they mean? Do you think topology is important? Why/why not? [2+3]
2. What is redundancy, and why should you avoid it in a geographical database? Describe the hierarchical and the relational database structures. [2+3]
3. Explain what operations are performed in a GIS when polygons are overlaid with polygons. In other words, what does the computer have to do, to overlay polygon layers? Do you think that this operation requires a lot of calculation capabilities, if so why? What is a common problem that may happen when overlaying two or more polygon layers? [5]
4. What is the use of RMS error? If a single point contributed a lot of residual error to your equation, what steps would you take to minimize its influence? [2+3]
5. What is suitability analysis? Describe the suitability analysis to select a suitable location for the waste disposal site. [1+4]
6. What are the land surface elements? Explain various sampling schemes along with their properties. [2+3]
7. What is DEM? Explain different method of calculating slope and flow direction in digital elevation models. [1+4]
8. Describe a kernel in raster neighborhood operations and the moving window concept. What are problems associated with Raster Analysis? [2.5+2.5]
9. What is the "sliver" or "spurious polygon" concept in the overlay? why does it occur? how do you identify and remove it? [1+2+2]

