MA/M.Sc. GEOGRAPHY
FOURTH SEMESTER .
GEOINFORMATICS: PRINCIPLES AND TECHNIQUES OF GIS
MGE-402C

Duration : 3 hrs.

Full Marks: 70

(**PART-A: Objective**)

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

1. Which type of DEM data is provided by Carto DEM?
    a. Digital Surface Model
    b. Digital Terrain Model
    c. Both (a) & (b)
    d. None

2. How alpha index can be expressed for a non-planner graph?
    a. α = actual circuits/maximum circuits
    b. $\alpha = C/Cmax = C/(2n - 5)$
    c. $\alpha = (L - n + 1)/(2n - 5)$
    d. All the above

3. Which type of network is formed when connection exists between the source node and the destination node?
    a. Planner network
    b. Non-planner network
    c. Directional network
    d. Both (a) & (b)

4. Digital Terrain Model can be generated from
    a. DEM data
    b. Contours
    c. Ground Control Points
    d. All the above

5. IDW belongs to which category of interpretation tool?
    a. Geostatistical model
    b. Deterministic model
    c. Linear model
    d. None of the above

6. Digital Terrain Elevation Data has been provided by
    a. NASA
    b. NOAA
    c. NIMA
    d. USGS

7. Which index is commonly known as 'average distance per tone'?
    a. Alpha index
    b. Pi index
    c. Iota index
    d. Gamma index

8. Which of the following element does not contain any attribute in a network?
    a. Stop
    b. Block
    c. Node
    d. Turn

9. Which type of kriging assumes that μ is an unknown constant in $l(s)= \mu + \varepsilon(s)$

    a. Indicator kriging
    b. Universal kriging
    c. Probability kriging
    d. Simple kriging

10. Finding most efficient path to a series of locations is known as
    a. TOUR
    b. PATH
    c. TRACING
    d. ALLOCATION

11. UTM stands for _____
    a. Universal Transformation Mercator
    b. Universal Transverse Mercator
    c. Universal Transformation Meridian
    d. Universal Transverse Meridian

12. GCP stands for _____
    a. Global Control points
    b. Ground Control Points
    c. Global Communication Points
    d. Ground Communication Points

13. A model that approximates the Earth. Also called spheroid.
    a. Ellipsoid
    b. Equivalent projection
    c. Equidistant projection
    d. All of the above

14. A value applied to the origin of a coordinate system to change the y-coordinate readings.
    a. False northing
    b. False tasting
    c. Both a and b
    d. None of the above

15. Projection of spatial data from one projected coordinate system to another.
    a. Projection globe
    b. Parallel globe
    c. Reference globe
    d. Reprojection

16. What is reclassification?
    a. An analytical technique based on point data.
    b. The process of simplifying data in a data layer.
    c. The process of combining one or more data ranges into a new data range to create a new data layer.
    d. The process of combing two or more data layers.

17. What is point-in polygon overlay?
    a. A method interpolating point data.
    b. An overlay method used to determine which points lie within the boundary of a polygon.
    c. An overlay method used to reclassify polygon data.
    d. An overlay method used to determine the distance between a point and its nearest neighbouring polygon

18. Modelling is also known as _____
    a. Analyzing Data
    b. Representation of real world
    c. Finding errors
    d. Data capture

19. _____ function allows the combination of two (or more) spatial data layers comparing them position by position, and treating areas of overlap and of non-overlap in distinct ways

a. Classification
b. Retrieval
c. Generalization
d. Overlay

20. _____ is a technique of purposefully removing detail from an input data set to reveal important patterns of spatial distribution
    a. Classification
    b. Regression
    c. Retrieval
    d. Derivation

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(PART-B : Descriptive)

[Answer question no.(1) & any four (4) from the rest]

1. What is geographic coordinate system and how is it different from the projected coordinate system?

5+5=10

2. What is topology? Elaborately explain different types of topological relationship of vector data.

1+9=10

3. What are the sources and types of errors in a GIS database? What measures should be taken for data accuracy while creating a GIS database.

4+6=10

4. What do you mean by interpolation in GIS? Write about any one type of interpolation and its uses. What are different types of network in GIS? Give suitable diagram in support of your answer.

2+4+4=10

5. What do you mean by Vector overlay? Explain Point-in-polygon overlay, Line on-polygon overlay, Polygon-on-polygon overlay.

1+3+3+3=10

6. What is internet GIS or web GIS? How can you consider internet GIS as a dynamic system? Explain the internet GIS system architecture with suitable diagram.

2+2+6=10

7. What is DBMS? What are different type of database system? What is SQL? What are different types of SQL statements?

2+3+2+3=10

8. Write short note on:
   a) SRTM
   b) Cartosat DEM

5+5=10

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