Parvatibai Chowgule College of Arts and Science
Autonomous
B.SC. Semester End Examination, Jan. / Feb. 2022

Semester: III

Subject: Geography

Title: Raster and Vector Data Models in GIS

Duration: 2 Hours   Max. Marks: 45

Instructions:

1. All questions are compulsory.
2. Figures on the right side indicate marks.
3. Answers should be handwritten. The time allocated is from 10.00am to 1.00pm.
4. Ensure that answer sheet is converted into PDF document and upload it before 1.00pm.
5. Instruction for format of answer sheet and PDF document uploaded on Google Classroom.

Q1. Answer any **THREE** of the following.   **(3X3=09)**

    A. Write a short note on boundaries of objects and fields in GIS.

    B. What are the applications of network analysis?

    C. What are the methods of encoding a raster data into computers?

    D. What is the significance of geo-database?

Q2. Answer any **TWO** of the following.   **(2X6=12)**

    A. What are the errors in digitization of vectors? Explain the methods to resolve errors of digitization?

    B. What is geospatial analysis? What are the tools used in geospatial analysis?

    C. What is datum? Explain, with illustration, the horizontal and vertical datum?

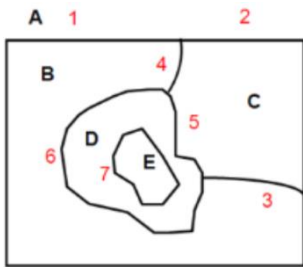**Q3.** Answer any **TWO** of the following.   **(2X6=12)**

    A. Write note on arc node topology and complete the arc node list using the graph given below.
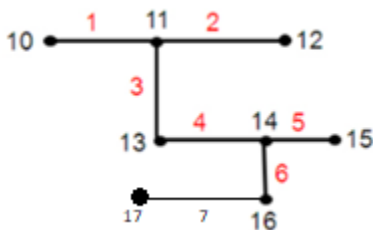
Arc Node Topology List		
Arc	From Node	To Node
1		
2		
3		
4		
5		
6		
7		

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B. Write note on containment and complete the table of polygon arc topology using the diagram given bellow.

C. Polygon arc topology	
Polygon	Arc List
A	
B	
C	
D	

C. Create Raster attribute table for raster datasets having 20m^2 resolution. Use the raster catalogue and raster data sets to complete the attribute tables given bellow:

County- 2010 **Catalog**

Raster 1: Slope degree

Rater 2: land Use

Raster 3: Soil type

OBJECTID	Shape	Raster	Name	Shape-Length	Shape-Area
1	1	1	Soil.tif	200	250
2	2	2	Land.tif	200	250
3	3	3	Slope.tif	200	250

Raster Attribute Tables

Slope.tif.vat.dbf

OID	VALUE	COUNT	Class
0	1		
1	2		
...	...		

Land.tif.vat.dbf

OID	VALUE	COUNT	Class
0	1		
1	2		
2	3		

Soil.tif.vat.dbf

OID	VALUE	COUNT	Class
0	1		
1	2		
...	...		

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Q4. Answer any **ONE** of the following.   **(1X12=12)**

    A.   Refer to the topographic chart below and answer as required.
        I.   Find similarities between the Geographic coordinate system and Cartesian coordinate system.
        II.   What type of projection and transformation do you prefer for geo-referencing the given map?
        III.   Explain the procedure of geo-referencing and transformation of the map in GIS software.
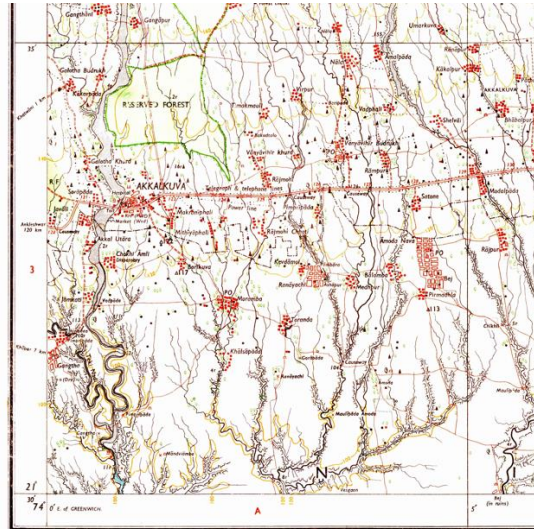
    B.   Refer to the topographic chart below and answer as required.
        I.   Identify the geographic features from given toposheet.

        II.   Classify identified the identified geographic features in to point, line and polygon data.

        III.   Create topology and attribute table for vector model for the identified features.

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