



Answer the following questions

Question 1 (15 marks)

(a) (5 marks)

Describe the main functions of a Geographical Information System.

(b) (5 marks)

Differentiate between the LIS and GIS

(c) (5 marks)

Describe the concept of layers in a geographic information system.

Question 2 (15 marks)

(a) (5 marks)

List the fundamental components of a GIS.

(b) (5 marks)

Name and describe the different simple spatial objects used for representing graphic data in digital form. Which objects are used in raster format representations?

(c) (5 marks)

Discuss the importance of metadata to a GIS.

Question 3 (20 marks)

(a) (5 marks)

(b) How many pixels are required to convert the following documents to raster form for the conditions given: A 384-in. square map scanned at 200 dpi.

(c) (7 marks)

Using sketches describe each of the following proximity (buffering) functions.

I. Point buffering

II. Line buffering

III. Polygon buffering

(d) (8 marks)

Write short notes about each of the following boundary functions:

I. Adjacency functions

II. Connectivity functions

III. Spatial joins

Question 4 (15 marks)

(a) (5 marks)

Explain how data can be converted from Vector to raster format

(b) (5 marks)

For what types of data is the vector format best suited?

(c) (5 marks)

Discuss the compromising relationships between grid cell size and resolution in raster data representation.

Question 5 (15 marks)

(a) (5 marks)

Compile a list of linear features for which the topological relationship of adjacency would be important.

(b) (5 marks)

Discuss the advantages and disadvantages of using tablet digitizer for converting maps and other graphic data to digital form:

(c) (5 marks)

Discuss GIS areas of applications.

Question 6 (20 marks)

(a) (8 marks)

Discuss how spatial and nonspatial data are related in a GIS.

(b) (12 marks)

Given the vector representation of a simple graphic record in the figure 1.

- i. Analyze graphic record into its fundamental elements describing the identifiers of each fundamental elements.
- ii. Investigate the topological functions in the figure 1.

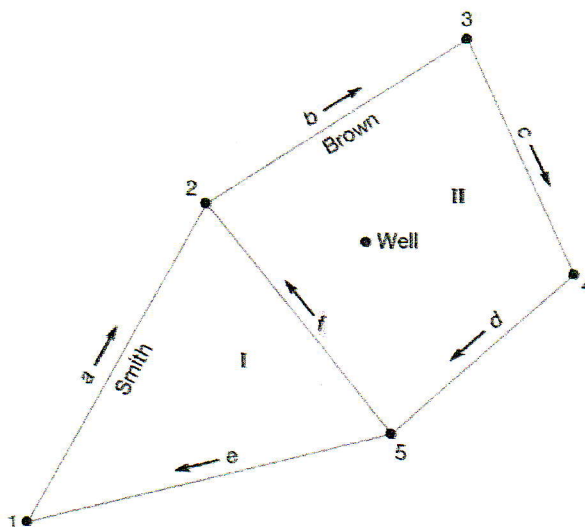


Figure 1: Vector representation of a simple graphic record

With our best wishes

This exam measures the following ILOs														
Question Number	Q1-a	Q2-c				Q2-d	Q3-a				Q3-b	Q4-c		
Skills	a2-1	a5-2				b4-1	b5-2				c4-1	c8-1		
	Knowledge & Understanding Skills					Intellectual Skills					Professional Skills			