Printed Pages: 4 **NIT-065**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 113665	**Roll No.**

B.TECH.

Theory Examination (Semester-VI) 2015-16

GEOGRAPHIC INFORMATION SYSTEM

Time : 3 Hours ***Max. Marks : 100***

Note : Attempt questions from all Sections as per directions.

Section-A

Attempt *all parts* of this section. Answer in brief. (2×10 = 20)

1. (a) What is GIS ? List the name of its components.

(b) Distinguish between an ellipsoid and geoid.

(c) What is geospatial domain?

(d) Describe the origin and characteristics of the Universal Transverse Mercator (UTM) coordinate system.

(e) Explain the differences between similarity and affine transformations.

(f) What is Tobler's first law of geography? Why is it important?

(g) What is logical data and physical data molding?

(h) Differentiate between competency model and enterprise computing.

(i) What factors will influence the results of the spatial autocorrelation?

(j) Explain the relationship between GIS and location based services.

Section-B

2. Attempt any five questions from this section. (10×5 = 50)

(a) What is meant by decision-making versus problem solving? Compare and determine whether or not it make sense to distinguish them.

(b) Describe advantages and disadvantages of vector data structure and Raster data structure.

(c) What do you mean by image enhancement? Explain linear contrast enhancement in detail.

(d) A satellite image of 2000 pixels is classified and the results are shown in following table: 1

Actual Class	Predicated Class			
	Urban	Crop	Water	Forest
Urban	520	20	4	0
Crop	12	623	0	25
Water	3	5	129	0
Forest	15	33	10	740

Table : 1

Determine overall accuracy, error of omission and error of omission for each class.

(e) How accuracy is being checked of the classified image? Explain it with any two examples.

(f) (i) Why are the 1960s and 1970s called the formative years of GIS?

(ii) Define "location based services"and explain the major categories of location based services in use today.

(g) What are the four properties that different map projections are designed to preserve? Why is it not possible to maintain all these properties in a single map projection?

(h) (a) What are the different meanings of spatial analysis in GIS?

(b) Distinguish between exploratory and confirmatory spatial data analysis.

Section-C

Attempt any two questions from this section. (15×2 = 30)

3. Why is spatial autocorrelation important in spatial data analysis? Compare Geary index with Moran's index. What is the meaning of W_{ij} in both indices?

4. List the all categories of spatial data mining techniques and explain in detail what they are?

5. Describe the five major approaches by which statistical analysis procedures can be incorporated with conventional GIS functions to enhance their spatial problem solving capabilities.