Name:

Enrolment No:

UPES

End Semester Examination, December 2024

Course: Geo-Spatial Data Analysis **Semester: V**

Program: B.Sc Hons. Geology **Time : 03 hrs.**

Course Code: PEGS3053P **Max. Marks: 100**

Instructions:

- **Question 6 has Internal Choice. Attempt any One.**
- **Answer any TWO questions in Section C**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	List four different benefits of using spatial statistics as opposed to traditional statistics.	**4**	**CO1**
Q 2	a) Define the term Fuzzy Membership. b) Differentiate between Criteria and Constraints in GIS-MCDA.	**2+2**	**CO4**
Q 3	Differentiate between "lattice" and "grid" map display forms.	**4**	**CO1**
Q 4	What is the significance of a larger circle and a smaller circle in Standard Distance tool when analyzing the distribution of a particular crime in a city?	**4**	**CO2**
Q 5	List the advantages/disadvantages of a TIN over a Gridded DEM.	**4**	**CO2**

SECTION B
(4Qx10M= 40 Marks)

Q 6	Illustrate and explain the types of sampling and estimation methods in GIS with suitable figures. OR Discuss the steps involved in creating a prediction surface using Kriging.	**10**	**CO2**
Q 7	Define an Index model. Illustrate the differences in vector-based Index model and raster-based Index model using diagrams.	**10**	**CO3**
Q 8	How is weighted overlay different from fuzzy overlay and explain the different types of fuzzy overlay.	**10**	**CO4**
Q 9	With proper explanation, suggest what spatial statistical tool you would use for the following problems. i) What is the relationship between educational attainment and income? Is the relationship consistent across the study area?	**2.5 x 4=10**	**CO2**

	ii) What is the orientation of the debris field? Where is the debris concentrated? iii) Where do we find anomalous spending patterns in New Delhi? iv) At which distance is spatial clustering most pronounced?		
SECTION-C Answer ANY TWO Questions (2Qx20M=40 Marks)			
Q 10	Discuss the different Interpolation methods in GIS citing the advantages and disadvantages of each method.	**20**	**CO2**
Q 11	Describe a case study of AHP with calculation of each step upto Consistency Index.	**20**	**CO4**
Q 12	Elaborate in detail the steps involved for hydrological modelling in ArcGIS.	**20**	**CO3**