



Name:	
Enrolment No:	

UPES
End Semester Examination, December 2023

Course: GIS & Spatial Data Analysis Program: B.Sc Geology Course Code: PEGS3056	Semester: V Time : 03 hrs. Max. Marks: 100
--	---

SECTION A
(5Qx4M=20Marks)

Q 1	With a simple example illustrate the difference between accuracy and precision.	04	CO1
Q 2	How do you distinguish between Exact and Inexact interpolator? Give an example of each type.	2+2 =04	CO2
Q 3	Differentiate between mean center and central feature in terms of spatial distributions by giving suitable examples.	04	CO3
Q 4	Choose the correct option: 1) Which of the following models considers presence of some randomness in its variables a) Stochastic model b) Deterministic model c) Deductive model d) Inductive model 2) In Ripley's K function if the average number of neighbors for evaluation distance is greater than average concentration of features throughout study area the distribution is----- a) Clustered b) Dispersed c) Random d) Isolated 3) The null hypothesis in spatial statistics is----- a) Complete Spatial Randomness b) Complete spatial autocorrelation c) Complete dispersion d) Complete closeness 4) P- value is the probability that the data displayed could be displayed by random occurrence. The higher is the P- value, the more is the randomness in your data. a) True b) False	04	CO3
Q 5	Differentiate between Criteria and Constraints in GIS-MCDA.	04	CO4

SECTION B
(4Qx10M= 40 Marks)

Q 6	Explain with proper justification, the type of spatial statistical tool, you would use to analyze the following problems. i) What is the relationship between educational attainment and income? Is the relationship consistent across the study area? 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?	2.5*4=10	CO3
-----	--	-----------------	------------

Q 7	Critically examine the statement “Whether a feature is represented as a point or a polygon in a GIS data base is entirely dependent on the nature of the phenomena itself”. Use your GIS knowledge to tell how this statement is valid.	10	CO1								
Q 8	a) A Flow Accumulation raster is one of the major derivatives in hydrological modelling. What inferences can you derive from a flow accumulation raster?	5	CO2								
	b) What is the maximum slope for the 3x3 window composed of elevation values shown below, given that the 1) elevation values (in meters) are indicated in the upper portion of each cell, 2) that the grid cell size is 100 meters, and 3) that the square root of 2 is 1.414? <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">923 *</td> <td style="text-align: center;">1037 *</td> <td style="text-align: center;">1125 *</td> </tr> <tr> <td style="text-align: center;">1109 *</td> <td style="text-align: center;">1000 *</td> <td style="text-align: center;">1073 *</td> </tr> <tr> <td style="text-align: center;">1136 *</td> <td style="text-align: center;">1043 *</td> <td style="text-align: center;">1065 *</td> </tr> </table>	923 *		1037 *	1125 *	1109 *	1000 *	1073 *	1136 *	1043 *	1065 *
923 *	1037 *	1125 *									
1109 *	1000 *	1073 *									
1136 *	1043 *	1065 *									
Q 9	Using a simple example, illustrate how weighted linear combination method is used for Vector and Raster Based index model. You can assume arbitrary cell values for each input grid. OR List the four different ways in which GIS Models could be classified. Illustrate your answer with relevant examples for each.	10	CO4								
SECTION-C (2Qx20M=40 Marks)											
Q 10	Describe a case study of AHP with calculation of each step upto Consistency Index.	20	CO4								
Q 11	a) Differentiate between OLS and GWR regression tools for modelling spatial relationships. b) What is spatial autocorrelation and how do you correlate Moran’s I index values with spatial autocorrelation? OR Describe the five different types of Interpolation in GIS with available options.	10*2 =20 20	CO3								