

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: MSc/PRE-PHD
BRANCH: Geoinformatics**

**SEMESTER : III/I
SESSION : MO/2025**

SUBJECT: GI602 ADVANCED GEOSPATIAL MODELLING & DECISION SUPPORT SYSTEM

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Discuss the raster based spatial analysis techniques	[5]	1 2
Q.1(b)	Describe and compare the advantages of using geodatabase over shapefiles	[5]	1 2
Q.2(a)	Compare the local and global methods of geostatistical analysis	[5]	2 3
Q.2(b)	Write short notes on any 5 types of semi variograms.	[5]	2 2
Q.3(a)	Describe advantages of DSS and explain components in brief.	[5]	3 2
Q.3(b)	Differentiate DSS and SDSS. Mention any 3 real world DSS and their class as per Alter's classification	[5]	3 2
Q.4(a)	Describe Multi-Criteria Decision Making (MCDM) technique along with its elements. Differentiate MODM and MADM	[5]	4 3
Q.4(b)	Formulate spatial problem of your city and explain the step-by-step process to solve it by MADM technique	[5]	4 2
Q.5(a)	Pairwise Comparison Matrix is given for selecting a suitable site for nuclear waste. Identify the criteria suitable for the given spatial problem from C1 to C4	[3]	4 3
Q.5(b)	In the given Pairwise Comparison Matrix, find out whether there exists any logical inconsistency or not. If there exists any inconsistency, then how many errors are there. Rectify the Errors and make the Correct Pairwise Comparison Matrix. Compare the weights calculated using AHP and Ranking methods.	[7]	4 3

:20/11/2025::E