

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

CLASS: MUP/IMSC/Pre-PhD
BRANCH: MUP/MATHS/RS

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

SUBJECT: RS520R1 REAL-WORLD OPERATIONALISATION OF GIS & GNSS

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)	Define GIS and explain its relevance in real world applications.	[4] [CO1]	[BL1]
Q.1(b)	GIS is composed of four basic components, describe these components in brief.	[4] [CO1]	[BL2]
Q.1(c)	Differentiate spatial and non-spatial data.	[2] [CO1]	[BL2]
Q.2(a)	Discuss the relevance of topology in context of vector data models. Name any two topological vector file formats.	[4] [CO1]	[BL2]
Q.2(b)	Describe the role of RDBMS and Object-Oriented DBMS in Geodatabase architecture.	[6] [CO2]	[BL3]
Q.3(a)	Describe one vector and one raster analysis techniques with the help of diagrams.	[6] [CO2]	[BL3]
Q.3(b)	Formulate a real-world problem of your hometown and write the steps of solving it using suitable raster/vector analysis techniques.	[4] [CO4]	[BL4]
Q.4(a)	What is Ephemeris? Explain Pseudo-range measurement.	[5] [CO3]	[BL-3]
Q.4(b)	Explain Ionospheric delay and write factors affecting it.	[5] [CO3]	[BL-3]
Q.5(a)	Write a note on WGS-84 datum.	[5] [CO3]	[BL-3]
Q.5(b)	Explain with a diagram measuring cartesian coordinates in WGS-84 datum	[5] [CO3]	[BL-4]

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