

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

**CLASS: M.Tech.
BRANCH: Remote Sensing**

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

**SUBJECT: RS502R2 GEOGRAPHIC INFORMATION SYSTEM AND SATELLITE NAVIGATION SYSTEMS
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) Justify the given statement: "GIS is neither DBMS nor Cartography".	[5] [CO1]	[BL3]
Q.1(b) Describe three specific properties of topology with the help of diagram.	[2] [CO2]	[BL3]
Q.1(c) What are different types of spatial data? Describe them.	[3] [CO1]	[BL2]
Q.2(a) What is the relevance of Geometric Transformations for spatial data and what are the inputs which need to be provided by the analyst during the process of Geometric Transformations?	[5] [CO1]	[BL2]
Q.2(b) One analog soil map from SOI at a scale of 1:50,000 was scanned with 'X' dpi and after georeferencing the pixel size was found to be 4.23m. This georeferenced output was evaluated by an expert and found not up to the mark. Find out the value of 'X' and probable value of RMS error.	[5] [CO5]	[BL4]
Q.3(a) Describe one topological and one non-topological vector analysis technique in brief.	[5] [CO2]	[BL3]
Q.3(b) Write short notes on the Geodatabase architecture.	[5] [CO1]	[BL3]
Q.4(a) NAVSTAR GPS satellites orbit at nearly 20000 km height from the earth. Write considerations for this constellation and functions of the Control Segment.	[5] [CO4]	[BL3]
Q.4(b) Explain positioning principles with a diagram.	[5] [CO4]	[BL3]
Q.5(a) What is a base line? Explain the static DGPS method and write its applications.	[5] [CO5]	[BL3]
Q.5(b) Explain differential levelling method with a diagram	[5] [CO5]	[BL4]

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