

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

**CLASS: MTECH
BRANCH: REMOTE SENSING**

**SEMESTER : I
SESSION : MO/2024**

SUBJECT: RS502R2 GEOGRAPHIC INFORMATION SYSTEM AND SATELLITE NAVIGATION 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.

		CO	BL
Q.1(a)	Geography is one of the major contributing domains for GIS, what are the other domains? Differentiate vector and raster data models in context of GIS.	[5]	CO1 BL1
Q.1(b)	Describe different components of GIS in brief. Name any one commercial and one open-source GIS software.	[5]	CO1 BL2
Q.2(a)	Describe different sources of Spatial Data with file formats including at least one source of getting direct vector data.	[5]	CO2 BL2
Q.2(b)	Explain role of polynomial transformation in the entire process of georeferencing. If scale of analog SOI map is 1:50,000 and it is scanned with 300dpi, then find out the pixel size of georeferenced output.	[5]	CO2 BL4
Q.3(a)	What are the requirements for performing overlay operation over two raster layers? Give example of logical overlay by taking two raster layers having dimension/order (4X4).	[5]	CO2 BL4
Q.3(b)	Pixel positions of end points of a road segment are $P_{100,90}$ and $P_{800,190}$ in MODIS image (spatial resolution-500m). Find out the actual length of road segment.	[5]	CO5 BL4
Q.4(a)	Write the characteristics of Pseudo Random Noise Codes and their role in satellite-based positioning.	[5]	CO1 BL3
Q.4(b)	Explain with a diagram the effect of satellite geometry on the positioning accuracy.	[5]	
Q.5(a)	Explain Static DGPS method and write its applications	[5]	CO4
Q.5(b)	Write five differences between prismatic compass and surveyor compass. What are the error sources in prismatic compass survey.	[5]	CO4

:::::20/11/2024:::::E