

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

**CLASS: MSc  
BRANCH: GEOINFORMATICS**

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

**SUBJECT: GI502 GEOGRAPHIC INFORMATION 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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- Q.1(a) What kind of data is handled by GIS? Explain with proper example. [5] CO BL  
Q.1(b) Compare shape file, Coverage and Featuredataset of Geodatabase. These are related to [5] CO1 BL2  
which major component of GIS and why? CO1 BL3
- Q.2(a) (i) If the input string is "BBBBBAAADEXXXXYZ" What will be the output using Run [1] CO2 BL3  
Length Encoding?  
(ii) Use the given raster and Create Output using Block and [4] CO2 BL4  
Chain Coding
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- Q.2(b) Explain Topology using Connectivity, Contiguity, Containment concepts with [5] CO2 BL6  
appropriate Diagram.
- Q.3(a) Write short note on Georeferencing. [5] CO3 BL2  
Q.3(b) The analog Geological map from GSI scanned at 200dpi and RMS error of the [5] CO3 BL4  
georeferenced map is 6 m then comment on the spatial accuracy of the georeferenced  
output if pixel size is 635cm and also find the scale of the GSI map.
- Q.4(a) How features of RDBMS imbedded in GIS are useful for solving real world problems? [6] CO3 BL4
- Q.4(b) What is Geodatabase? Write the name of vector and raster file formats stored in [4] CO4 BL6  
Geodatabase.
- Q.5(a) Use the given spatial maps (Spatial Resolution is 10m) and Solve the following: [5]  
(i) Find out total area of Forest falling in CO5 BL4  
the elevation less than 600m  
(ii) Find out total number Agriculture CO5 BL4  
Pixels occurring above 400m  
(iii) Find out total area of Urban and Rural  
classes not occurring above 700m. CO5 BL5
- | LULC Map |    |    |    | Elevation Map |   |   |   |
|----------|----|----|----|---------------|---|---|---|
| Ag       | Ag | Wt | Wt | 4             | 5 | 5 | 7 |
| Fr       | Fr | Ur | Ur | 4             | 5 | 7 | 7 |
| Fr       | Fr | Ur | Ur | 2             | 6 | 6 | 8 |
| Ag       | Ag | Ru | Ru | 6             | 6 | 8 | 8 |
- LULC: Ag-Agri; Fr-Forest; Wt-Water; Ur – Urban; Ru-Rural  
Elevation: 2-200m; 4 – 400m; 5-500m; 6-600m; 7-700m; 8-800m
- Q.5(b) Explain different Dimensions like 0D, 1D, 2D, 2.5D, 3D, 4D from GIS perspectives with [5] CO4 BL6  
diagrams.

:22/11/2024::E