

**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.

---

Q.1(a) What kind of data is handled by GIS? Explain with proper example. [5] CO CO1 BL2

Q.1(b) Compare shape file, Coverage and Featuredataset of Geodatabase. These are related to which major component of GIS and why? [5] CO1 CO1 BL3

Q.2(a) (i) If the input string is “BBBBBAAADEXXXXYZ” What will be the output using Run Length Encoding? [1] CO2 BL3

(ii) Use the given raster and Create Output using Block and Chain Coding [4] CO2 BL4

Q.2(b) Explain Topology using Connectivity, Contiguity, Containment concepts with appropriate Diagram. [5] CO2 BL6

Q.3(a) Write short note on Georeferencing. [5] CO3 CO3 BL2

Q.3(b) The analog Geological map from GSI scanned at 200dpi and RMS error of the 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. [5] CO3 CO3 BL4

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 Geodatabase. [4] CO4 CO4 BL6

Q.5(a) Use the given spatial maps (Spatial Resolution is 10m) and Solve the following: [5] CO5 CO5 BL4

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

(i) Find out total area of Forest falling in the elevation less than 600m  
(ii) Find out total number Agriculture Pixels occurring above 400m  
(iii) Find out total area of Urban and Rural classes not occurring above 700m.

Q.5(b) Explain different Dimensions like 0D, 1D, 2D, 2.5D, 3D, 4D from GIS perspectives with diagrams. [5] CO4 CO4 BL6