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

CLASS: MTECH **SEMESTER : I**
BRANCH: REMOTE SENSING **SESSION : MO/18**

SUBJECT: RS502 GEOGRAPHIC INFORMATION SYSTEM AND SATELLITE NAVIGATION SYSTEMS
TIME: 3 HRS. **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) Cartography is one of the major contributing domains for GIS. What are the other domains? [2]
Q.1(b) What are the functionalities of GIS software? Name any two commercial GIS softwares. [3]
Q.1(c) Why is compression required in case of raster dataset? Explain quadtree compression technique in brief. [5]

Q.2(a) Describe the data acquisition methods in GIS environment. [3]
Q.2(b) Give two-two example of spheroid and datum. [2]
Q.2(c) What are the sources of errors for any spatial data? How RMS error is associated with pixel size? [5]

Q.3(a) What are the requirements for performing overlay operation over two raster layers? Explain output of symmetrical difference operation by taking two raster layers having dimension (4X4). [5]
Q.3(b) 'Slope' is coming under which broad class of raster analysis technique? Calculate the slope value for the shaded pixel position in the figure given below having elevation value 67m. [5]

100	100	100
100	105	110
100	100	100
98	67	75
50	62	55

Q.4(a) What are Pseudo-Random Noise Codes? How are they used in positioning? Also, calculate pulse rate of each of the code. [5]
Q.4(b) What is cut off angle? Give its significance in achieving high accuracy. [5]

Q.5(a) How a coordinate system is defined? WGS-84 is a global datum. Comment. [5]
Q.5(b) Define an ellipsoid and explain relationship of surface of the Earth, Geoid and Ellipsoid with a diagram. [5]

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