

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

**CLASS: MSC/PRE-PHD
BRANCH: MGI**

**SEMESTER : III/NA
SESSION : MO/18**

**SUBJECT: SGI3019 GEOINFORMATICS IN WATER RESOURCES
TIME: 3.00 HOURS**

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 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) Explain how to generate a continuous rainfall map from point data and which interpolation techniques is preferred for it and why? [3+3]
- Q.1(b) Explain with diagram piezometric level of a confined aquifer. Also explain how artesian wells are developed? [6]
- Q.2(a) Describe the different types of problems associated with a watershed and their remedial strategies. [5]
- Q.2(b) Write the difference between linear and areal morphometric parameters. Describe three different types of areal morphometric parameters along with their significance. [1+6]
- Q.3(a) Describe the role of remote sensing and GIS in the assessment of water quality. [6]
- Q.3(b) Explain how electric resistivity survey is performed using Wenner's configuration. [6]
- Q.4(a) How lineaments are mapped on satellite data? Write their significance in river valley project site selection. [6]
- Q.4(b) List the layers required to be prepared in determining the suitable site for water conservation structures using various satellite data. [6]
- Q.5(a) Describe the different types of drought and role of remote sensing and GIS in the assessment of drought. [6]
- Q.5(b) Describe the method of estimation of reservoir sedimentation. [6]
- Q.6(a) Write short notes on the followings [3+3]
a. Initial abstraction.
b. Surface retention
- Q.6(b) Describe the process of preparation of flood hazard zonation map. [6]
- Q.7(a) How flood hazard zone map is prepared using RS and GIS technique? Explain. [6]
- Q.7(b) Write interpretation keys of landforms associated with hills. [6]

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