# M.Sc. 3rd Semester Examination, 2012

## REMOTE SENSING AND GIS

PAPER—RSG-301 (Gr.-A+B)

*Full Marks* : 40

*Time* : 2 hours

*The figures in the right-hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

*Illustrate the answers wherever necessary*

GROUP—A

[ *Marks* : 20 ]

Answer any *two* questions :

1. What are the advantages of Remote Sensing technique for estimating evapotranspiration ? How far NOAA AVHRR and Landsat ETM$^+$ data is useful for estimating evapotranspiration ? What is Wetness Index ? 5 + 3 + 2

2. Briefly discuss about application of Remote Sensing technique in various areas of hydrology. 10

3. What is curve number method for run-off estimation ? Discuss about indirect methods for estimating precipitation. What is stem flow ? 5 + 3 + 2

4. Briefly discuss different criteria for land use and land cover classification system. How far microwave remote sensing is suitable for measuring rainfall ? What is TRMM ? 5 + 3 + 2

## GROUP – B

[ *Marks* : 20 ]

Answer any *two* questions :

5. Why watershed is considered as the basic scientific unit for land and water management studies ? How hypsometric curve of a watershed can influence the decision making on land use planning ? Differentiate between stream order and bifurcation ratio. 2 + 5 + 3

6. (*a*) Briefly state the role of RS and GIS techniques in micro-watershed delineation and management.

   (*b*) What are the aims and objectives of micro -watershed concept in developmental planning ? 6 + 4

7. What are the factors that control site suitability for reservoir construction ? How does geoinformatics help in this regard ? Discuss the role of morphometry in canal alignment. 3 + 4 + 3

8. How does land use pattern control run-off volume ? Explain with the help of an emperical model how satellite image, soil map and rainfall data can be used to estimate the annual run-off from a watershed. 3 + 7