

2007

**REMOTE SENSING AND
GEOGRAPHIC INFORMATION SYSTEM****PAPER—VIII (MOD-34 & 35)***Full Marks.:* 100*Time :* 4 hours*The figures in the right-hand margin indicate full marks.**Candidates are required to give their answers in their own' words as far as practicable.**Illustrate. the answers wherever necessary.**Write the answers of questions for each modules in separate books.***Remote Sensing in Land and Water Management**MODULE ^{-;. 34} (Fill Marks 50)-**Group-A**Answer any *two* questions.

2x 15

- 1. Image overlay, field observation checking and editing, Map overlay and final report generation are the fundamental steps of land use mapping.'** Elaborate the above statement. 15
- 2. Describe with a diagram the main phases of global hydrological cycle. Discuss the spaceborne and ground based microwave technique used for rain fall estimation.** 6+9

- 3: "Total radiance from water is the function of electromagnetic energy from four sources." How these radiance are used to detect organic and inorganic impurities in water.? 15
4. Plan for appropriate Land use Land cover for the following issues : 15
- Solid waste disposal.
 - Selecting a location for hydroelectric power plant.
 - Establishing boundaries of a state park or wild life preserve.
 - Zoning decisions in suburban region near a large city.
 - Abandoned toxic waste dumps.

Group--B

Answer any two questions. 2x 10

5. 'Narrate different techniques of surface investigation.. of ground water with special emphasis on remote sensing. 10
6. What are the different clauses depicted in Level-I and Level-II categories of USGS Land use Land cover classification-1976. Mention the ten criteria based on which this classification has been made. 5+5
7. What do you understand by parametric watershed modelling ? Depict the role of Remote Sensing in evaluation of hydrologic parameters. 4+6

- 8. Write short notes on any four :** 2 z X4
- (a) **Snow and cloud invisible and infrared spectrum.**
 - (b) **Estimation of evapotranspiration from NDVI & LST (Land Surface Temperature).**
 - (c) **Specific retention and specific yield.**
 - (d) **Surface expression of aquifer on alluvial deposits.**
 - (e) **Gamma radiation and Thermal techniques for soil moisture estimation.**
 - (f) **Runoff estimation by SCS curve number.**

MODULE - 35 (Full Marks : 50)

Group-A

Answer any *two* questions. 2x 15

- 1... What are the different. aspects of morphometry of a watershed ? How are they, measured and used for **assessing** ground water potentiality ? 4+11
2. **What is evapotranspiration ? How can evaporation be estimated using remotely sensed data ?** 4+11
3. Discuss the principles and techniques of flood assessment, flood mapping and flood plain mapping. 5+5+5
4. What are the factors that control site suitability of reservoir construction ? How can Remote Sensing help in dam site selection ? 8+7

Group-B

Answer any *two* questions.

2x 10

5. Elaborate the hydro-morphogeologic interpretation' techniques for targetting ground water potential zones in sedimentary areas. 10
6. Describe the principles nad techniques of. locating aquifers using satellite imageries and aerial photographs.. 10
7. Bring out the factors. of ground water recharging. 10
8. Write short notes on `any two : ' . 2x5
 - (a) Stream order.
 - (b) Aquatic biodiversity.
 - (c) Factors, associated with canal ?lignment.
 - (d) Microwave remote sensing yin soil moi ti re estimati iri.