Code No: **RT42012D** **R13** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

GROUND WATER DEVELOPMENT AND MANAGEMENT

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) Discuss in detail about the leaky aquifers. [3]
   b) Under what circumstances a radial collector well can be most advantageously used? [4]
   c) Write short notes on well completion and well maintenance. [4]
   d) What are the measures to control sea water intrusion? [3]
   e) Distinguish between geophysical logging and resistivity logging. [4]
   f) Write short notes on basin management by conjunctive use. [4]

PART–B *(3x16 = 48 Marks)*

2. a) What are different types of aquifers? Draw neat sketches and explain [8]
   b) Explain non equilibrium equation developed by 'Theis' and also explain the solution for the same. [8]

3. a) Find the diameter of tube well made in a confined aquifer for the following data
   Yield from the well =0.2 cubic m /sec
   Radius of Influence =250m
   Coefficient of Permeability= 56m/day
   Drawdown=5m; Thickness of aquifer=25m [10]
   b) What are well screens? How do you decide length and slot size. [6]

4. Write short notes on following methods of well development
   a) Mechanical surging using compressed air b) High velocity jetting of water
   c) Over pumping and back washing d) Dispersing agents [16]

5. a) Explain in detail Concept of artificial recharge of groundwater. [8]
   b) Explain the Gayben–Herzberg relation for saline water intrusion [8]

6. a) Explain with the help of neat sketches, giving relevant equation: Electrical Resistivity method on the ground surface. [8]
   b) Explain important features of aerial photogrammetry in ground water exploration. [8]

7. a) Discuss the basic principles of groundwater modeling. [8]
   b) Write short notes on (i) Analog models (ii) digital models. [8]