

Code No: RT42012D

R13

Set No. 1

IV B.Tech II Semester Supplementary Examinations, July/August - 2017
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

PART-A (22 Marks)

1. a) Discuss different type of aquifers with their features. [4]
b) What is meant by infiltration gallery? [3]
c) What are the methods of tube well construction? [4]
d) Why is it necessary to recharge ground water? [3]
e) Discuss in detail the geophysical logging. [4]
f) What is the importance of conjunctive use in water resources planning [4]

PART-B (3x16 = 48 Marks)

2. a) How do you analyze unsteady flow towards a well either in confined or unconfined aquifer? Discuss any one solution method. [8]
b) Derive differential equation governing ground water flow in three dimensions. [8]
3. a) Estimate the radius of a tube well made in confined aquifer for the following details. i) Rate of flow required from well = 0.50
ii) Radius of circle of influence = 600 m
iii) Coefficient of permeability = 36 m/day
iv) Drawdown = 8.2m
v) Thickness of confined aquifer = 45m. [10]
b) Explain the features of a well design. [6]
4. a) Discuss the methods of well development and disinfection [8]
b) Write short notes on i) rotary drilling ii) Percussion drilling. [8]
5. a) Explain the following methods of artificial recharge of ground water
(i) Recharge mounds
(ii) Induced recharge
(iii) Ditch and furrow recharge [10]
b) Discuss various techniques to control sea water intrusion [6]
6. a) Briefly discuss the merits and demerits of surface and subsurface investigations of ground water. [8]
b) Explain in detail the following to explore ground water occurrence
i) Seismic Refraction method
ii) Resistivity logging [8]
7. Discuss the concepts of basin management and explain any case study illustrating groundwater basin management? [16]