Printed Pages : 1 Roll No. ECE063

B.TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

GROUNDWATER MANAGEMENT

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) List the different types of aquifers.

(b) Define hydro-geologist.

(c) What arethe limitations made in Dupits theory?

(d) Differentiate between confined and unconfined aquifers.

(e) State the water well.

(f) Write the types of tube well.

(g) List the techniques adopted for groundwater modelling.

(h) What is groundwater drainage?

(i) State the advantage of groundwater management model

(j) Write the application of remote sensing in groundwater management.

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) Describe in detail about the Occurrence of ground water?

(b) Express the flow net construction for steady groundwater flow.

(c) State the characteristic well losses in detail.

(d) (i) Design a tube well for the following data:

Yield required = 0.08cumec
Thickness of confined aquifer = 30m
Radius of circle of influence = 300m
Permeability coefficient = 60m/day
Drawdown = 5 m

(ii) Write the selection of suitable site for tube well in detail.

(e) Write short notes on

(i) Well construction (ii) Well completion (iii) Well disinfection

(f) What do you mean by artificial discharge and recharge of groundwater? Explain the term groundwater drainage.

(g) Brief notes on Groundwater budgeting and Surface & Sub surface investigation of groundwater.

(h) Write a brief note on rain water harvesting method for urban areas.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3 (i) Derive an expression for the steady state discharge from a well in an unconfined aquifer. Draw a neat sketch and state clear all the assumption.

(ii) Enumerate the different techniques of geophysical exploration and explain any two.

4 (i) Explain in detail with neat sketch the "Hydrologic Cycle".

(ii) Write the different phenomenon that occurs in the movement of contaminated water.

5 What do you understand by groundwater modelling? How is GIS applied for modelling?