B.TECH. SEM -VII (CIVIL) 2014 COURSE (CBCS) : WINTER - 2017

SUBJECT: ELECTIVE-II-GROUND WATER HYDROLOGY

Day : **Monday**
Date : **22/01/2018**

Time: **02.30 PM TO 05.30 PM**
Max. Marks: 60.

W-2017-2266

N.B.:

1) All questions are **COMPULSORY.**
2) Figures to the **RIGHT** indicate full marks.
3) Draw neat labeled diagrams **WHEREVER** necessary.
4) Use of non-programmable pocket calculator is **ALLOWED.**

Q.1 **a)** Describe Hydrological cycle with neat sketches. Define the hydrological terms. **(06)**

b) Define Aquifer, Aquiclude, Aquifuge, Aquitard. **(04)**

OR

a) Discuss ground water resources in India. **(05)**

b) Differentiate between confined and unconfined aquifer. **(05)**

Q.2 What is a flow net? What are the properties of flownet and write their application in hydraulics structures. **(10)**

OR

Show that the Laplace equation satisfies the equation of steady ground water flow in homogeneous isotropic medium. **(10)**

Q.3 Derive the equation for steady ground water flow in unconfined aquifer. **(10)**

OR

A 30 cm well completely penetrates an unconfined aquifer of saturated depth of 50 m. After a long period of pumping at a steady rate of 1300 lipm the drawdown in two observatory wells 30 and 80 m from the pumping well were found to be 3.5 and 2.5 m respectively. Determine the transmissibility of the aquifer. What is the drawdown at the pumping well? **(10)**

Q.4 Discuss infiltration gallery with respect to its advantages, construction and design. **(10)**

OR

What are the points to be considered while selecting the site for tube well? **(10)**

Q.5 What is artificial recharge of ground water? Discuss its need, purpose and advantages. **(10)**

OR

What are the selection criteria for suitable technique for artificial recharge? Explain Ditch and Furrow method of artificial recharge. **(10)**

Q.6 Explain various water quality plots or maps and explain any one of them. **(10)**

OR

Describe quality of ground water for irrigation.

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