Code No: RT21354 **R13** SET - 1

II B. Tech I Semester Supplementary Examinations, May/June - 2017
GROUND WATER HYDROLOGY, WELLS AND PUMPS
(Agricultural Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) What is meant by specific yield and specific retention?
   b) What are the different types of aquifers? Explain in brief.
   c) Differentiate steady and unsteady flow.
   d) Write a brief note on ground water project formulation.
   e) Bring out the differences between centrifugal pumps and reciprocating pumps.
   f) Give the salient features of Propeller pump.

PART –B

2. a) Write a detailed note on ground water potential and development in India.
   b) In a homogeneous isotropic confined aquifer of constant thickness of 20m, effective porosity of 20% and permeability of 15m/day, two observation wells 1200 m apart indicate piezometric heads of 5.4 m and 3.0m, respectively, above mean sea level. Assuming uniform flow, average gain diameter of sand 1 mm and kinematic viscosity of water = 0.01 cm^2/sec. state Whether Darcy’s law is applicable?
   What is the average flow velocity in pores?

3. a) Discuss the various methods of drilling along with their suitability.
   b) Explain the tests that are carried out in respect of open wells.

4. a) Describe the multiple well point systems in coastal areas.
   b) Discuss the well interference assessment.

5. a) Give a detailed note on Solar photo voltaic Pumping Systems.
   b) Give a critical note on exploitation of Surface and Sub-surface water in India. What is the present scenario?

6. a) Give the basis on which a manufacturer recommends a particular type of pump. Provide the classification of pumps and discuss the various along with their suitability.
   b) Describe different characteristic curves of a Centrifugal Pump with neat sketches.

7. a) Discuss critically, the cost economics of ground water pumping.
   b) Describe the need for priming of Centrifugal pumps. How is it achieved?
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