Code No: R1621353 **R16** SET - 1

II B. Tech I Semester Supplementary Examinations, May - 2019
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 **FOUR** Questions from **Part-B**

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PART –A

1. a) Define the terms transmissibility and zone of aeration.
   b) List any four common well drilling difficulties.
   c) What is unsteady state condition of an aquifer?
   d) What is Well losses and interference among wells
   e) Define Manometric head and Total head.
   f) What are the salient features of airlift pumps?

PART -B

2. a) State the difference between confined and confined aquifer.
   b) Explain in detail and support your answer with a neat sketch
      i) Perched ii) Semiconfined

3. a) Design an Open Well in fine sand to give a discharge of 0.004 cumec when worked under a depression head of 2.5 meters
   b) Explain the Jetting method and Core drilling method with neat sketch.

4. a) A 15 cm diameter well penetrates an 8 m thick water bearing strata underlain and overlain by impermeable beds. The well was operated with a constant discharge rate of 100 liters/min for 12 hours. The steady state draw downs were 3 and 0.05 m at distance 10 m and 50 m, respectively from the well. Using This equations calculate the transmissibility and hydraulic conductivity of the aquifer.
   b) Explain the aquifer parameters by Jacob's method

5. a) Explain the following method of ground water exploration method:
   Electrical resistivity method
   b) Seismic refraction method

6. a) How is selection of pumps made?
   b) Draw and explain the performance of characteristics curves.

7. a) Differentiate between hydraulic ram and centrifugal pumps.
   b) What is priming? Why is it necessary?
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