



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech.(Agri. Engg) 2015 Admission**  
**VI Semester Final Examination July 2018**

**Iden.3207**

**Ground Water Wells and Pumps (2+1)**

**Marks: 50**  
**Time: 2 hours**

**I Fill up the blanks (10x1=10)**

- 1 Aquifer is a geological formation that .....
- 2 Hydraulic resistance is a property of .....
- 3 The best method for construction of water wells in hard rock areas is .....
- 4 In reciprocating pumps, the difference between swept volume and output per stroke is called .....
- 5 The minimum fall in altitude required for working of hydraulic ram is .....

**State whether the following statements are true or false**

- 6 Wells are spaced far apart in hard rocks than in alluvial areas.
- 7 The specific yield of a formation may be more than its porosity.
- 8 Doubling the diameter of the well doubles the well yield.
- 9 The flow and storage of ground water in hard rock is due to secondary porosity.
- 10 The pump most suitable for delivering large quantities of water under low head is propeller pump.

**II Write Short notes on any FIVE of the following (5x2=10)**

- 1 Different types of water bearing formations.
- 2 Derive the equation for steady state flow to wells in unconfined aquifer.
- 3 Mention the various methods of well development and their application.
- 4 Reciprocating pumps and classification of various types of reciprocating pumps.
- 5 Pump characteristics curves in case of centrifugal pumps.
- 6 Working of hydraulic ram.
- 7 Salient features of propeller and mixed flow pumps

**III Answer any FIVE of the following. (5x4=20)**

- 1 Various types of open wells.
- 2 Deep well turbine pumps.
- 3 What is meant by pump performance? How pump performance is affected by change of pump speed and change of impeller diameter?
- 4 What are the various ground water quality parameters for water supply and irrigation purpose?
- 5 What are positive displacement pumps? Explain different types of reciprocating pumps.
- 6 Ground water exploration techniques.
- 7 Design of open wells.

**IV Write an essay on any ONE of the following (1x10=10)**

- 1 Artificial recharge of ground water.
- 2 Various steps in design of tube wells.

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