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ET-532(B)

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2013

ET-532(B) : GROUND WATER DEVELOPMENT

Time : 3 hours *Maximum Marks : 70*

Note : *Solve **any five** questions. **All** questions carry **equal** marks. Give neat and labelled **sketches**.*

1. (a) Sketch out the experimental set-up for verifying Darcy's Law. Also explain the procedure. 9

   (b) What is hydraulic conductivity ? What factors influnce it ? Explain in detail. 5

2. (a) Out line the features of an unconfined aquifer, using a sketch. 7

   (b) Explain what makes a perched aquifer, and why it is called so. 5

   (c) What differentiates the unconfined from the confined aquifer ? Explain 2

3. (a) Explain the uses of tracers in the study of ground water hydrology. 6

(b) Summarise the main factors that control the hydrology and properties of an aquifer in various types of consolidated sedimentary rocks. 8

4. (a) What is a pumping test, and why it is performed ? 3

(b) What are the principles on which this test is based ? 3

(c) What do we look for while choosing a pumping-test site ? 8

5. Explain the seismic refraction method as it is used in geo-physical investigations ? What are its limitations ? 14

6. Discuss the design of the following in a Tube well. 14

(a) Casing

(b) Well diameter

(c) Screening

(d) Intake

7. Write an essay on the hydrological processes in a basin with reference to : 14

(a) Precipitation;

(b) Evaporation and transpiration;

(c) Water budgeting; and

(d) Energy budgeting

8. With reference to watershed development, explain the following : **4x3½=14**

(a) Contour bunding ;

(b) farm ponds ;

(c) percolation tanks ;

(d) sub-surface dams