Code: R7420102

R7

B.Tech IV Year II Semester (R07) Advanced Supplementary Examinations June 2012

GROUND WATER DEVELOPMENT AND MANAGEMENT

(Civil Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) Explain vertical distribution of ground water below the ground surface.
(b) What are different types of aquifers? Explain each.

2 (a) What are ground water flow contours? Also give their applications.
(b) Explain Darcy's law. Also explain transmissivity.

3 (a) Explain the terms cone of depression, draw down, radius of influence and porosity.
(b) A well of 0.6 m diameter penetrates fully into a confined aquifer of thickness 22 m and hydraulic conductivity 8.3×10^{-4} m/s. What is maximum yield expected from this well if the drawdown in the well is not to exceed 3 m. The radius of influence may be taken as 250 m.

4 (a) Explain with neat sketches the cooper and Jacob methods of determining the aquifer parameters.
(b) What are leaky aquifers?

5 (a) Explain photogrammetry with respect to ground water development.
(b) Explain electrical resistivity method.

6 (a) What is the necessity of artificial recharge of ground water?
(b) Give the applications of GIS in artificial recharge of ground water.

7 (a) What is Ghyban-Herzbery relation? What are its applications?
(b) List out the control measures to arrest the saline water intrusion into aquifers.

8 (a) Discuss the role of leaky aquifers and aquifer characteristics porosity and permeability in ground water basin management.
(b) Discuss the concepts of conjunctive use with case studies.

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