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B.Tech. 8th Semester (Civil Engg.) Examination,

December-2012

GROUND WATER ENGINEERING

Paper-CE-426-E

Time allowed : 3 hours] [Maximum marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Define following hydrological parameters ?
 - (i) Porosity
 - (ii) Permeability
 - (iii) Transmissibility and
 - (iv) Conductivity 4×2=8
- (b) Describe the basic principle of electrical method of ground water presence. What is ARCHIE law for estimation of resistivity of non porous clayey soil ? 12
2. (a) State Thiem's Equilibrium formula, giving its limitations and adjustments. 10
- (b) Describe well loss due to well-screen and axial movement within the well. 10

3. Describe in detail various types of water bearing stratas. What are their characteristics ? 20
4. (a) State various aspects and hydrological parameters considered while designing deep tube well. 10
- (b) Describe code of practice for construction of tube well. 10
5. Enlist causes of failure of irrigation wells and describe in brief, remedies for reduction of failures. 20
6. Explain in detail hydraulic method of tube well drilling and its testing. What is a Bore Log ? 20
7. How will you identify the areas for recharge of ground water, also describe various sources of water which help in recharge of ground water. 20
8. Write short notes on *any four* of the following :
- (i) Hydraulic testing of pumps
 - (ii) Re-charge pits
 - (iii) Spherical flow in well
 - (iv) Tile drain
 - (v) Alignment of tube well 5×4=20