

Roll No. ....

2634

**B. Tech. 8th Semester (Civil Engg.) (Electives)**

**Examination – May, 2013**

**GROUND WATER ENGINEERING**

**Paper : CE-426-E**

**Time : Three hours ]**

**[ Maximum Marks : 100**

*Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

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

1. (a) Briefly describe tile drainage, weeping tiles and running drains. 10
- (b) What is geophysical method of ground water investigation? 10
2. (a) Define following hydrological parameters: 10
  - (i) Porosity
  - (ii) Permeability
  - (iii) Transmissibility and
  - (iv) Conductivity.

- (b) Describe the basic principle of electrical method of ground water presence. Describe law-governing estimation of resistivity of non-porous clayey soil ? 10
3. (a) State Thiem's Equilibrium formula, giving its limitations and adjustments. 10
- (b) What do you understand by interference among wells ? 10
4. (a) State various aspects considered while designing a deep tube well. 10
- (b) Describe code of practice for construction of a tube well. 10
5. (a) Explain briefly wash bore technology. 10
- (b) Describe construction techniques of a shallow well. 10
6. Explain in detail hydraulic method of tube well drilling and its testing. 20
7. Describe various sources of water for recharge of ground water. 20
8. Write short notes on any *four* of the following :  $5 \times 4 = 20$
- (i) Bore Log
  - (ii) Re-charge pits
  - (iii) Spherical flow in well
  - (iv) Tile drain
  - (v) Alignment of tube well