

Total No. of Questions : 8]

SEAT No. :

**P3778**

**[4760]-90**

[Total No. of Pages : 2

**M.E. (Civil) (Water Resource and Environmental Engineering)**

**GROUND WATER MODELLING**

**(2012 Course) (Elective - III) (501611)**

*Time : 3 Hours]*

*[Max. Marks :100*

*Instructions to the candidates:*

- 1) Answer to the two sections should be written in separate answer books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right side indicate full marks.*
- 4) Use of calculator is allowed.*
- 5) Assume suitable data if necessary.*
- 6) All questions are compulsory.*

**SECTION - I**

- Q1)** a) Write in detail the occurrence and movement of ground water. [10]
- b) Discuss in short the aquifer system. [5]
- Q2)** a) Write a note on Unit Hydrograph. [10]
- b) Discuss in short the Darcy's law. [5]
- Q3)** a) Write an essay on seepage from surface water artificial recharge. [5]
- b) Vertical distribution of sub surface water. [5]
- Q4)** a) Write in short the Ground water budget. [5]
- b) How Pump tests are carried on field. [5]

**P.T.O.**

## **SECTION - II**

- Q5)** a) Write in detail the constraints on groundwater development. [10]  
b) Limitations in ground water flow modeling. [5]
- Q6)** a) Write an essay on ground water flow model. [10]  
b) Limitations of ground water modeling by FEM. [5]
- Q7)** a) Discuss in detail the Mathematical modeling of ground water system.[5]  
b) Sources of error in Modeling. [5]
- Q8)** a) Discuss the details of misuse of Models for ground water modeling. [5]  
b) Write a note on data preparation for the ground water modeling. [5]

*EEE*