C 56413

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION JUNE 2009

CE 04 705 (E)—GROUND WATER HYDROLOGY

(2004 admissions)

Time : Three Hours   Maximum : 100 Marks

*Answer **all** questions.*

I. (a) Define porosity and uniformly coefficient.

  (b) Distinguish between specific yield and specific refraction.

  (c) "Formation Loss" in an important component. Justify.

  (d) What are the uses of recuperation test.

  (e) What are the disadvantages of openwells.

  (f) What are the uses of radial wells.

  (g) Write a note on shallo well pumps.

  (h) What do you understand by induced recharge.

(8 × 5 = 40 marks)

II. (a) Draw a neat sketch of dom and sketch the possible flow net for the seepage.   (7 marks)

  (b) What do you understand by partial penetration of wells. On what parameters the flow will be controlled in partial penetrating wells.

(8 marks)

Or

  (c) Explain the rock properties that effect groundwater distribution.   (7 marks)

  (d) Derive the Laplace equation as applied to GW flow. What on the basic assumptions.

(8 marks)

III. (a) Using recovery test, you can determine only T while by conducting pump test you can estimate both T and S. Justify with neat sketches.

(8 marks)

  (b) Explain image well theory. What are its uses ?   (7 marks)

Or

  (c) Derive an unsteady flow equation in polar coordinate system.   (7 marks)

  (d) How do you locate recharge boundary using pump test data ?   (8 marks)

IV. (a) Explain how do you decide the need of screening in wells. What are the functions of screening ?   (8 marks)

  (b) What do you understand by "decline in well yield" ? How do you rectify the same ?

(7 marks)

Or

Turn over

(c) What is the need of "yield test" ? How do you conduct it ? What are the limitations ?

(8 marks)

(d) Write a neat sketch of an infiltration gallery and explain its functions. (7 marks)

V. (a) Explain the use of electric resistivity method. (7 marks)

(b) Define Artificial recharge. Why and when it is necessary ? (8 marks)

Or

(c) Write a note on recharge through waste spreading. (7 marks)

(d) How do you decided sampling strategy for GW Quality assessment. (8 marks)

[4 × 15 = 60 marks]