

Roll No.

Total Pages : 3

BT-8/M-20

38048

GROUND WATER ENGG.

Paper–CE-418-E/CE-418N

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Attempt five questions in all, selecting at least one question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) Define specific yield from a well. How to determine it in field and laboratory? 7½
- (b) Explain hydraulic conductivity used in ground water engg using Darcy's law. 7½
2. Derive equation of motion for steady and unsteady ground water flow in an isotropic homogeneous aquifer. 15

UNIT–II

3. (a) What do you understand by a partially penetrating well? Support your answer with sketches. 7½
- (b) Derive radial flow equation for steady state of wells in unconfined aquifer. 7½

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4. (a) What do you understand by spherical flow in a well? Support your answer with sketches. $7\frac{1}{2}$
- (b) A well is located in an aquifer with hydraulic conductivity 16m/day and storativity 0.006. The aquifer is 22m thick and is pumped at a rate of 2800m³/day. What is the drawdown at a distance of 6m from the well after one day of pumping? $7\frac{1}{2}$

UNIT-III

5. (a) Why a strainer is used in the tube wells? Describe Tej and Phonix strainers used in them. $7\frac{1}{2}$
- (b) What do you mean by well shrouding? Explain it briefly. $7\frac{1}{2}$
6. (a) What do you understand by tube well sickness? Explain modes of failure of the tube wells. $7\frac{1}{2}$
- (b) A tube well of 300mm diameter penetrates fully a confined aquifer. The length of the strainer is 27m. Calculate the yield from the well under a drawdown of 4.5m. The coefficient of permeability of aquifer = 60m/day and radius of circle of influence = 260m. $7\frac{1}{2}$

UNIT-IV

7. (a) Describe the status of ground water resources of Haryana in general and Kurukshetra in particular. 7½
- (b) What is meant by artificial recharge of ground water? Explain, why ground water recharge is necessary especially with reference to Haryana State. 7½
8. Explain the working of pressure type recharge well commonly used for controlling the problem of salt water intrusion in India. 15

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