MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : CE(OE)801D Groundwater Contamination

UPID : 008333

Time Allotted : 3 Hours *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer *any ten* of the following : [1 x 10 = 10]

(I) True/ False: Volatile Organic Chemicals (VOCs) are among the most commonly found contaminants in groundwater.

(II) Which is the main reason for the depletion of ground water levels?

(III) The directions of the ground water flow have to be established with _____ .

(IV) The water bearing strata is called _____ .

(V) What is specific capacity?

(VI) Ground water characteristics has to be monitored at least once in a _____ till design span.

(VII) Motion of groundwater along with contaminants tend to form _____ .

(VIII) What is water conservation?

(IX) Ground water flow map is also known as _____ .

(X) When the pervious strata, the surface of water surrounding the well is at atmospheric pressure, the well is known as _____ .

(XI) Write down the relation with Porosity, Specific yield and Specific retention.

(XII) Biochemical Oxygen Demand (BOD) of safe drinking water should be ____ .

Group-B (Short Answer Type Question)

Answer *any three* of the following : [5 x 3 = 15]

2. Discuss about Water Budget Equation. [5]
3. Write down the Causes of groundwater pollution [5]
4. Briefly describe groundwater as a part of the hydrologic cycle. [5]
5. Describe Dupit's Formula for Steady One Directional Flow. [5]
6. Discuss about the Permeable Reactive Barriers (PRBs). [5]

Group-C (Long Answer Type Question)

Answer *any three* of the following : [15 x 3 = 45]

7. A 30 cm well penetrates below the static water table. After a long period of pumping at a rate of 1800 lpm, the drawdowns in the wells at 15 m and 45 m from the pumped well were 1.7 m and 0.8 m respectively. Determine the transmissibility of the aquifer. What is the drawdown in the pumped well? [15]
8. Describe groundwater remediation techniques. [15]
9. (a) Describe about ground water resources. [5]
   (b) Describe Methods of ground water exploration. [10]
10. Derive the equation for Steady Radial Flow into a well in Confined Aquifers. [15]
11. Derive the solute transport equation. [15]

*** END OF PAPER ***