



Reg. No. :

Name :

**Seventh Semester B.Tech. Degree Examination, October 2014
(2008 Scheme)
08.704 : ENVIRONMENTAL ENGINEERING – I (C)**

Time : 3 Hours

Max. Marks : 100

Instructions : 1) Answer *all* questions.
2) Assume suitable data *wherever* necessary.

PART – A

1. a) List out the various population forecasting techniques.
- b) List out the various factors that influence the per capita water demand.
- c) Write a short note on pressure filters.
- d) What are the various processes (in order) in a water treatment plant ?
- e) Explain the theory and principle behind sedimentation.
- f) State why chlorine is most widely used for disinfection of water.
- g) Why and where are air valves located ?
- h) Explain the various methods of water distribution. **(8×5=40 Marks)**

PART – B

Module – I

2. Explain in detail the various physical, chemical and bacteriological characteristics of water. **20**

OR

3. A centrifugal pump driven by an electric motor lifts water through a total head of 60 m from the reservoir to the discharge end. The pump efficiency is 75% and the motor efficiency is 80%. The lift (water) is through 250 m length of 10 cm diameter pipe and the pumping rate is 1500 litres/minute. If the Darcy Weisbach friction factor is 0.03 and power costs 25 paise per kilowatt hour, what is the cost of power for pumping 3.8×10^6 litres of water ? **20**

P.T.O.

**Module – II**

4. Design (with sketch) a clariflocculator to treat 20 MLD of water for Water Treatment Plant.

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OR

5. Design (with sketch) a rapid sand filter unit for treating 6 MLD of water with all it's principal components.

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Module – III

6. Describe in detail the various methods of disinfection in water treatment and add a short note on Break Point Chlorination.

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OR

7. Explain Hardy cross method of solving the network of pipes by balancing heads by correcting flow. Also derive an expression to find the correction for the assumed flow.

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