

Code: CE5T2

**III B.Tech - I Semester – Regular/Supplementary Examinations
October 2017**

**ENVIRONMENTAL ENGINEERING - I
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) What are the objectives of municipal water supply projects?
- b) What are the general considerations of the water distribution system design?
- c) List the various types of layout of distribution system.
- d) Describe the factors to be considered for rain water harvesting.
- e) What is the significance of Nitrite and fluoride in water?
- f) What do you mean by disinfection?
- g) Write notes on : i) Membrane process ii) Desalination process
- h) What is the purpose of coagulation?
- i) Distinguish between demineralization and desalination.
- j) What are the advantages of steel pipes in water supply project?
- k) What are the four different systems of distribution?

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Describe planning for public water supply system. 8 M

b) What factors are required to be considered in the selection of the type of pump? Discuss the situations under which the following types of pumps may be used. 8 M

(i) Reciprocating pumps.

(ii) Centrifugal pumps.

3.a) Discuss the various Physical, Chemical and Biological characteristics of water. 8 M

b) Write short notes on: 8 M

(i) Theory of sedimentation.

(ii) Coagulation.

4.a) Discuss the relative merits of rapid sand filters and slow sand filters indicating the condition favorable for the choice each. 8 M

b) Discuss the use of chlorine as disinfecting agent with reference to a: 8 M

i) Its disinfecting action.

ii) Dosage

iii) Its form

iv) Testing its residuals

5.a) What are the effects of excess concentration of fluoride in water and list the methods available for defluoridation and explain any one of them. 8 M

b) Describe the method of removing permanent hardness. 8 M

6.a) What are Drain Valves? Explain their working in detail. 8 M

b) Explain different plumbing systems of drainage. 8 M