

6E3035

Roll No. _____

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B.Tech VI Semester (Main/Back) Exam., April, May 2012

Civil Engineering

6CE4 Environmental Engineering - I

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

Attempt any five questions, selecting one question from each unit. All Question carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/ calculated must be stated clerly.

Use of following supporting material is permitted during examination.

1. _____ Nil _____

2. _____ Nil _____

Unit – I

- Q1 (a) describe the role of an environment Engineer in the protection of Environment. 8
- (b) Describe the factors affecting the per capital demand of water supply per day. 8

Or

- Q1 (a) What are the verious types of water demand? Describe the percent wise distribution of various types of demands. 8
- (b) Describe the various methods of estimation of population and explain that which type of a method in suitable is which condition. 8

Unit - II

- Q2 (a) Explain various methods of well development. 8
- (b) Describe the method of finding the yield of an open well. 8

Or

- Q2 (a) What are the various water borne diseases and their causative agents? 8
- (b) What are the Indian standards for the permissible limits of TDS, chloride, fluorides and nitrate in the portable water? What is E-coli and what is its significance? 8

Unit - III

- Q3 (a) Describe various type of pumps and the criteria of selection of a pump and site for pumping station. 08
- (b) A city has a population of 1,50,000. Water is to be supplied at The rate of 200 litre per capita per day. The static lift is 50m. the length of 500mm dia rising main is 300m. Efficiency of pump is 70% and that of motor is 80%. $f = 0.04$ and peak factor = 1.5. Calculate the required horse power of the pump. 8

Or

- Q3 (a) Describe the various types of settling. Find the settling velocity of spherical particle of & specific gravity 2.67 with a diameter of 0.004cm at 25°C in water. 8
- (b) design a rectangular sedimentation tank for the following data
- (i) Volume of water to be treated = 3MLD
- (ii) Detention period = 4 hour
- (iii) Velocity of flow = 0.1m/minute 8

Unit – IV

- Q4 (a) Explain the working of a rapid sand filter with neat sketch. What are the desirable qualities of filter media? 8
- (b) Design 6 slow sand filter beds from the following data .
- (i) population = 60000
 - (ii) per capita demand = 180 liter /capital day
 - (iii) rate of filtration = 200 liter /m²/hr
 - (iv) peak factor = 1.8
 - (v) L:B ratio = 2
- Assume that 1 unit is kept as stand by out of the 6 . 8

Or

- Q4 (a) Describe the factors affecting bactericidal efficiency of Chlorine. 8
- (b) Explain various methods of disinfection of water. 8

Unit – V

- Q5 (a) Sketch and explain the various components of a domestic water service connection. 8
- (b) Describe various methods of distribution and give the values of residual pressure at ferrule for different storied buildings. 8

Or

- Q5 (a) Describe Hardy Cross method of pipe network analysis. 8
- (b) Describe the various components of distribution system. 8