Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

CE-4003(CBGS)

B.E. IV Semester

Examination, May 2018

Choice Based Grading System (CBGS)

Water Supply and Waste Water Engineering - I

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions
ii) All questions carry equal marks.

1. a) Write a note on various water-borne diseases. 7
   b) Write a note on common impurities found in water and their significance. 7

2. Compute the "fire demand" for a city having a population of 1,40,000 using 14
   i) Kuichlings formula
   ii) Buston's formula
   iii) Freeman's formula
   iv) National Board of Fire Underwriter's Formula

3. The following is the population data of a city available from past census records. Determine the population of the city in 2011 by 14
   a) Arithmetical increase method
   b) Geometrical increase method
   c) Incremental increase method

Year	Population
1931	12000
1941	16500
1951	26800
1961	41500
1971	57500
1981	68000
1991	74100

4. a) Write short notes on the layout of distribution systems which are commonly used in India. 7
   b) Write short notes on the following: 7
   i) Sluice valve ii) Pressure relief valve
   iii) Check-valve

5. Design the section of a combined circular sewer from the following data 14
   Area to be served = 150 hectares
   Population of the locality = 50,000
   Max, permissible velocity = 3.2 m/sec
   Time of entry = 5 minutes
   Time of flow = 20 minutes
   Rate of water supply = 270 litres/day/capita
   Impermeability factor = 0.45

6. Write short notes on the following: 14
   i) B.O.D ii) C.O.D
   iii) Relative Stability iv) Solids in sewage

7. Explain the various physical, chemical, biological characteristics of water. Also mention the permissible limits as per drinking water standards. 14

8. Explain the necessity of providing manhole in sewer line. Explain the construction of a manhole with the help of neat sketches. 14

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