c) Discuss various types of stresses to which a water supply main is subjected.

d) What do you understand by Water Pollution Control Act? Give details.

OR

Define Gate valve; Air relief valve; Tyton Joint and Reflux valve.

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Roll No .....

CE - 603

B.E. VI Semester

Examination, June 2016

Environmental Engineering - I

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) What do you understand by Per Capita Demand and Fire Demand?

b) Explain Logistic S-Curve method?

c) Give a clear comparison of quality of water obtained from various sources of water?

d) What is the meant by Coincident draft and how it is used in estimating design draft for the design of distribution system.

OR

In two periods each of 20 years a city has grown from 40000 to 160000 and then 280000. Determine :

i) Saturation Population

ii) the equation of logistic curve and

iii) the expected population after the next 15 year.

2. a) List out various Physical and chemical properties of water? Define any two with details.

   b) What is the unit of color? Also explain softening of water?

   c) Give WHO standards of water quality parameters for drinking purpose?

   d) At a water treatment plant, 12 million liters of water is treated daily, using alum dosage of 16mg per liters.

   Find :

   i) total quantity of alum used daily and

   ii) amount of carbon dioxide released.

   OR

   Define :

   i) Coliform Index

   ii) BOD

   iii) MPN and

   iv) E-Coli

3. a) What do you understand by Blue Baby Disease?

   b) Define principle of Coagulation, Flocculation and Sedimentation?

   c) Define :

   i) Free Chlorine

   ii) Residual Chlorine

   iii) Brake point Chlorination and

   iv) Desalination

   d) Design rapids and filtration units for a population of 1,00,000 to be served by a 200 liters/capita/day water supply. Assume the following : Rate of filtration : 3×10^5 m^3/ha/day; amount of wash water : 5% of filtered water/day: Filter dimensions of each unit : 17.5m × 10m. the filter needs back washing once in 24 hours?

   OR

   Give advantages and disadvantages of slow sand filter over Rapid sand filter with neat sketches and technical details.

4. a) Which distribution system is oldest distribution system of water supply? Give two advantages and disadvantages of that system.

   b) Define Radial distribution system and give its advantages and disadvantages?

   c) Compare the continuous and intermittent system of water supply.

   d) Explain Hardy Cross method for of solving the network, by balancing heads in correcting flow. Show the expression use for the correction of the Assumed flow.

   OR

   What are the requirements of good distribution system of water supply? Explain clearly.

5. a) Give a brief note on rural water supply project scheme.

   b) List out parameters required to design water supply of rural areas.