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Roll No.

CE-603

B. E. (Sixth Semester) EXAMINATION, June, 2009

(Civil Engg. Branch)

ENVIRONMENTAL ENGINEERING – I

(CE – 603)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Solve any *five* questions. All questions carry equal marks.

1. (a) Explain how do you determine the safe yield from a reservoir of a given capacity. 10
(b) A well penetrates fully a 10 m thick water bearing stratum of medium sand having coefficient of permeability of 0.005 m/sec. The well radius is 10 cm and is to be worked under a drawdown of 4 m at the well face. Calculate the discharge from the well. What will be the percentage increase in the discharge if the radius of the well is doubled ? 10
2. (a) Explain in brief various expressions used to determine the 'Fire demand'. 8
(b) Describe in brief various important tests conducted for chemical examination of water. 12

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3. (a) What are intakes ? What are the important factors which govern the selection of site of an intake ? Explain reservoir intake with sketch. 10
- (b) What do you understand by *E. coli* ? How do you determine its presence in water? 10
4. (a) Show that the settling velocity of a spherical particle in liquid under condition when Reynolds' number is less than 0.5 may be given by the expression : 10

$$V_s = \frac{g}{18} \frac{(S_s - 1) d^2}{\mu}$$

- (b) At a water treatment plant 15 million litres of water is treated daily using ferrous sulphate and lime. If the dosage of ferrous sulphate is 08 mg per litre, determine the total quantities of ferrous sulphate and lime required daily. 10
5. (a) What actions take place during filtration ? 10
- (b) Enumerate various methods of disinfection. Explain any two in detail. 10
6. (a) What is zeolite process ? How is it regenerated ? Explain the zeolite method of water softening. 10
- (b) Discuss with the help of diagrams, various methods of laying out the distribution system. 10
7. (a) What do you know about water pollution legislation ? State the functions of the State Board set up for the water pollution control by the state government. 10
- (b) Explain various data which collected during preparation of water supply project. 10

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8. Write short notes on any *four* of the following : 5 each
- (i) Two pipe plumbing system
 - (ii) Brake point chlorination
 - (iii) Water-borne disease
 - (iv) Pressure filter
 - (v) Aeration process
 - (vi) Cavity tube well