

(Following Paper ID and Roll No. to be filled in your  
Answer Books)

Paper ID : 2289544

Roll No.

## B.TECH

Regular Theory Examination (Odd Sem - V), 2016-17

### ENVIRONMENTAL ENGINEERING - I

*Time : 3 Hours*

*Max. Marks : 100*

*Note : i) Attempt all questions.*

*ii) Marks are indicated against each question.*

*iii) Assume any data suitably, if required.*

**1. Attempt all parts. Each part carries equal marks.**

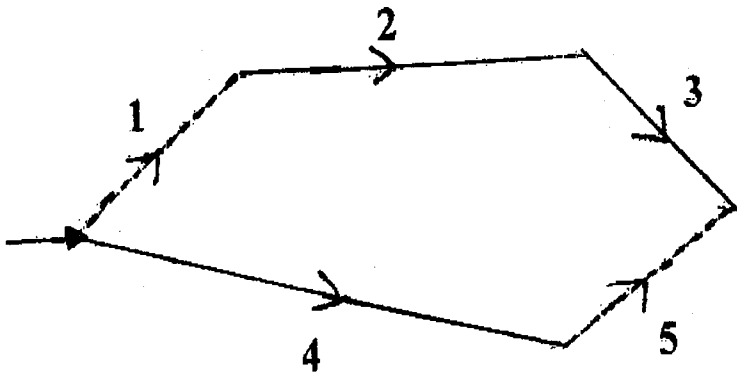
**(10×2=20)**

- What are the infiltration galleries?
- What is the domestic water demand?
- What is the per capita demand?
- Define the pipe materials.
- Give the name of different types of sewer.
- What is the function of drop main hole?

- g) What is the acid rain? What are the cause of the acid rain?
- h) What are the various plumbing system?
- i) Define the waste water.
- j) Define the gravity conduits.

2. Attempt any five questions (5×10=50)

- a) Explain the following joints used in water supply pipes with neat sketches.
- Socket & spigot joint.
  - Expansion joints.
- b) Discuss various classifications of cement concrete pipe as per IS-458-2003. Also give suitability of each class of pipes.
- c) Find the diameter of a 900 m long equivalent pipe ( $C_{HW} = 100$ ) to replace the series-parallel system shown in fig.2. The length and diameter and  $C_{HW}$  coefficients are as follows :



Pipe-1-300m, 250mm, 120

Pipe-2-400m, 300mm, 130

Pipe-3-200m, 200mm, 100

Pipe-4-500m, 400mm, 130

Pipe-5-300m, 250mm, 80

- d) Discuss the method of balancing heads and balancing flows in Hardy Cross method of analysis of pipe network. Explain each method with example.
- e) Explain water hammer and its control measures.
- f) With diagram explain briefly Logistic Curves.
- g) What is the importance of ventilation in sewers? How is it provided in sewer line?
- h) Discuss the various methods for laying a water distribution network.

3. Attempt any two parts of the following (2×15=30)

- a) What do you mean by air pollution? List out the pollutants causing air pollution and their sources of origin.
- b) What is to be supplied to a town of 2 lakh population from a source 1.5 km away? "The per capital demand

of town in 200 lpcd". If town is situated at a higher level than the source and the difference in elevation b/w the lowest water in the source to the point of inlet at the water works is 27m. Determine the size of the rising main and H.P. of the pump. The valve of  $C_H = 110$  and the pump works for 18 hours.

- c) What do you understand by "storm regulators"? Explain with neat sketches, the working of different type of storm regulators.

