c) Define conservancy system of sanitation. Describe the various types of privies, that are used in conservancy system of sanitation.

d) What is the meant of "Sulabh souchalya". Describe with sketch. Why are they finding increasing uses in developing countries like India.

OR

Write short notes on

i) Physiochemical waste water treatment

ii) Phosphorus removal

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Roll No .....

CE - 703

B.E. VII Semester

Examination, December 2015

Environmental Engineering-II

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.

Unit - I

1. a) Describe the fluctuation per day in flow of sewage of a city.

b) Describe various shapes of sewer with their merits and demerits.

c) Describe the combined and separate system of sewerage, with their merits and demerits.

d) What do you understand by "Sewer appurtenance". Enumerate various appurtenances commonly used. Explain any two in details.

OR

For a small town, having projected population of 30,000 residing over an area of 20 hectares. Find the design

discharge for the combined sever for the following data-

Rate of water supply = 150lit/day/per capita

Runoff coefficient = 0.40

Time of concentration = 30minutes

Unit - II

2. a) Define the term relative stability and population equivalent.

   b) Write short note on "Self purification capacity of river".

   c) Enumerate various physical and chemical characteristics of sewage with their definitions.

   d) What is sewage farming? What are its advantages over the method of sewage disposal by dilution? What precautions must be taken in its operation to prevent health hazards?

OR

Describe the BOD of sewage with influencing parameters. Calculate the 1 day 37°C BOD of a sewage sample whose 5 day 20°C BOD is 100 mg/lit.

Unit - III

3. a) Enumerate the various stages of sewage treatment with unit of treatment of each stage.

   b) Write short note on "Skimming tank" OR "Grit Chamber".

   c) Enumerate the types of screen and their functions in sewage treatment.

   d) What is sedimentation? How it can improve with coagulants? Describe the functioning of a rectangular sedimentation tank with neat sketch. Also stated the key parameters which considered in design of a sedimentation tank.

OR

What is trickling filter, explain with neat sketch. Compare the conventional and high rate trickling filter. Also stated the key parameters which considered in design of a trickling filter.

Unit - IV

4. a) Differentiate between aerobic and non aerobic decomposition of sewage.

   b) Define the functioning of Oxidation pond.

   c) Describe the functioning of Septic tank with neat sketch.

   d) What is meant by activated sludge? Describe with sketches the treatment of sewage by activated sludge process. Also mention the merits and demerits of activated sludge process method.

OR

What is meant by digestion of sewage sludge? Describe the functioning of a digesting tank with sketch. Also mention the term "Sludge digestion index".

Unit - V

5. a) Write short note on "Diatomaceous earth filter".

   b) Write short note on "Adsorption by activated carbon".