SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[2]**

B.Tech. || CE || 6th Sem
Environmental Engineering-II
Subject Code:BTCE-606
Paper ID:

May, 2018, 2011-14 Batch

Max Marks: 60

Time allowed: 3 Hrs

mportant Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

(a) What is non-scouring velocity?
(b) Write down the advantages & disadvantages of Septic Tank.
(c) What do you mean by term BOD?
(d) How would you compare separate sewer and combined sewer.
(e) What is meant by sewage sickness?
(f) What is 'time of concentration'? How does it affect the design of storm sewers?
(g) What is the necessity of maintaining constant velocity in grit channel?
(h) What precautions you must take before entering a sewer?
(i) What are anti-syphonage pipes? Why are they used?
(j) What do you mean by Imhoff tank and for which purpose it is used?

PART B (5×8marks)

Q. 2. How would you describe the merits of the separate and the combined systems of sewage, and give the conditions favorable for the adoption of each one of them. CO1

OR

How would you describe the method you will adopt for working out the design capacities of various laterals, branch sewers, and main sewers of a sewerage system. CO1

Q. 3. Design a suitable rectangular sedimentation tank (provided with mechanical cleaning equipment) for treating the sewage from a city, provided with an assured public water supply system, with a max. daily demand of 12 million liters per day. Assume suitable values of detention period and velocity of flow in the tank. Make any other assumptions, wherever needed. CO2

OR

What can you say about the construction and maintenance of sewers, bringing out the salient features like materials used, shapes and gradients adopted generally. CO2

Q. 4. Explain the classification of treatment process and also explain UASB & SBR technologies. CO3

CO3

OR

If 2.5 ml of raw sewage has been diluted to 250ml and DO concentration of the diluted sample at the beginning of the BOD test was 8mg/l and 5mg/l after 5day incubation at 20°C find the BOD of raw sewage.

Q. 5. The sewage is flowing @ 4.5 million liters per day from a primary clarifier to a standard rate trickling filter. The 5 day BOD of the influent is 160 mg/l. The value of the adopted organic loading is to be 160gm/m^3/day, and surface loading 2000 L/m^2/day. Determine the volume of the filter and its depth. Also calculate the efficiency of this filter unit. CO3

OR

Explain in detail the differences between Conventional and High Rate Trickling Filters. CO3

Q. 6. Explain in detail the unit processes and unit operations which fall under advanced wastewater treatment along with the purpose of each. CO4

OR

Draw and explain the flow diagram of a conventional Activated Sludge Plant. CO4