Programme: B. Tech

Course Name: Environmental Engineering - I

Course Code: ECE 358

Assignment – 5

Topics Covered – Unit 3 (CO3)

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Assignment –5

Assume suitable data wherever necessary

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1. Design a RSF to treat a flow of 20MLD. Assume suitable design parameters.

2. Design six SSF beds for water supply to a town having population of 1 lakh. The per capita rate of filtration is 135lpcd and rate of filtration is 220 $l/hr/m^2$.

3. Design a RSF for treating a flow of 8 MLD with a filtration rate of $4500l/hr/m^2$. Assume appropriate condition for backwashing for the filter.

4. Explain in details the functioning of the filtration process.

5. In a neat tabular format, compare RSF and SSF including the functioning, associated advantages and disadvantages and their suitability for use. Other pertinent conditions may also be discussed in the comparison.

6. Explain with neat sketches the functioning of an (a) RSF and an (b) SSF

7. The population of a town is 60,000 with a per capita demand of 135l/d. Determine the following assuming the use of an RSF (a) Total area of filters (b) Number and Dimensions of filter bed (c) Qty of air required for air washing of per filter bed and (d) Backwashing water required per filter area.

8. Write short notes on (a) requirement of underdrainage system in the filtration unit (b) different problems associated with filter operations (c) rate control of filtration process.