

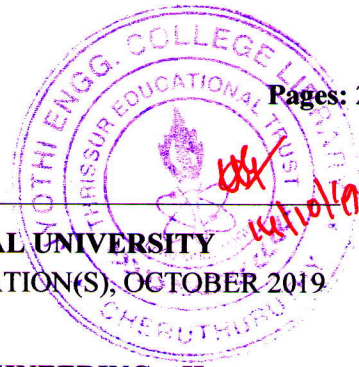
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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 2019

Course Code: CE402

Course Name: ENVIRONMENTAL ENGINEERING – II

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

- 1 a) Differentiate dry weather flow and storm water flow. What are the factors affecting dry weather flow? (5)
- b) A town has a population of 100000 persons with a per capita water supply of 150 l/day/person. Design a sewer running full at maximum discharge. Take $n=0.013$ at all depth of flow. Slope of 1 in 500 and take peak factor of 3 (10)
- 2 a) A 2% solution of a sewage sample is incubated for 5 days at 20°C. The depletion in oxygen was found to be 5mg/L. Determine the BOD of the sewage? (7)
- b) Discuss the importance of self cleaning velocity and limiting velocity in sewers. (4)
- c) Discuss the term time of concentration (4)
- 3 a) Explain Population equivalent (3)
- b) Explain the physical, chemical and bacteriological characteristics of sewage (12)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) What is oxygen sag curve? Explain various zones of pollution in a river. (6)
- b) Design a suitable bar screen for a plant treating a peak flow of 50million litres per day of sewage. Also compute the head loss through such a screen. Assume suitable data wherever necessary. (9)
- 5 a) Write short notes on flow equalization tank. (3)
- b) Explain Streeter Phelp's equation. (4)
- c) Explain the construction and operation of an intermittent sand filter. Mention the advantages and disadvantages of this system (8)

- 6 Design a conventional trickling filter and its rotary distribution system for treating 5 MLD of sewage with a BOD of 200 mg/l. (15)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Design an imhoff tank to treat the sewage from a small town with a population of 20000 persons ,with sewage flow rate of 180 litres per day (14)
- b) What are the advantages and disadvantages of oxidation ponds? (6)
- 8 a) What is an aerated lagoon? (5)
- b) Design a digestion tank for primary sludge with the help of following data (10)
- 1)Average flow=250mld
2)Total suspended solids in raw sewage=400mg/l
3)Moisture content of digested sludge =85%
- Assume any other suitable data you require
- c) Explain upflow anaerobic sludge blanket? (5)
- 9 a) With the help of neat sketch explain the working of sludge digestion tank (12)
- b) Write a note on sludge conditioning. (4)
- c) Explain the construction and working of sludge lagooning. (4)
