Reg No.:_____ Name:_____

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)

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