Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (R, S) / S4 (PT) (R, S) Examination June 2023 (2019 Scheme)

Course Code: CET304

Course Name: ENVIRONMENTAL ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1	Discuss the merits & demerits of separate and combined system of sewage	(3)
2	Differentiate population equivalent and design period.	(3)
3	What are the objectives of providing aerators in water treatment plant?	(3)
4	Explain any three coagulants used in water treatment plant.	(3)
5	Discuss about theory of filtration.	(3)
6	Explain about different layout of distribution of water.	(3)
7	What are the factors considered during site selection of waste water treatment plant.	(3)
8	What are the secondary treatment units of waste water?	(3)
9	Explain about oxidation pond.	(3)
10	Write notes on sludge thickening process.	(3)

PART B

Answer one full question from each module, each carries 14 marks.

Module I

11 a) The following is the population data of a city available from past census records. Determine the population of the year 2011, 2021 by (a) Geometrical increase method (b) Incremental increase method. (7)

year	1931	1941	1951	1961	1971	1981	1991
population	12000	16500	26800	41500	57500	68000	74100

b) Explain about canal and river intake with neat sketch. (7)

OR

12 a) The total area of a district is 36 hectare and in which 20% of area is roof with C=0.9, 20 % is pavement (C=0.85), 5 % is paved yard (C=0.8), 15% is Mecadam road (C=0.4), 35% (8)

is lawns (C=0.1) and 5 % is miscellaneous (C=0.05). The intensity of rain is 5cm/ hr, Find out the runoff.

b) Explain about different types of pumps for water conveyance. (6)

Module II

13 a) Discuss about different types of screens. (7)

b) Design a plain sedimentation tank for water supply scheme having capacity to treat water=10 MLD. Assume the data which is required. (7)

OR

14 a) Define stokes law. (4)

b) Explain about wet feeding and dry feeding devices (10)

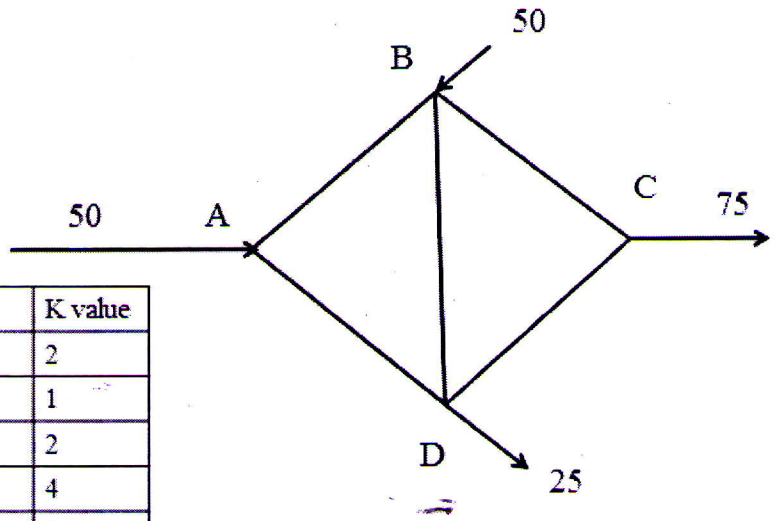
Module III

15 a) Explain the working of a rapid sand filter. Discuss about backwashing of rapid sand filter. (10)

b) What is equivalent pipe method. (4)

OR

16 a) (10)



PIPE	K value
AB	2
BD	1
DA	2
BC	4
CD	3

Analyse the given network using Hardy cross method.

b) Discuss any two disinfection methods (4)

Module IV

17 a) Discuss about flow equalization tank. (4)

b) Explain the construction and working of trickling filter with neat sketch. (10)

OR

18 a) What are the unit processes and operations in waste water treatment plant (4)

b) Explain about activated sludge process. (10)

Module V

19 a) Explain about UASB reactor (7)

b) Design a septic tank for disposing the waste water from a community of 150 people, and the quantity of water supplied at a rate of 120 litres/person/day. Assume any data may required (7)

OR

20 a) Explain sludge digestion process with neat sketch of sludge digestion tank. (10)

b) Explain the principle by which wetlands treat wastewater. (4)

****