Reg No.:_____ Name:_____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Examination June 2022 (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		What are the factors on which natural forces of purification depend?	(3)
2		Compare pressure flow and gravity flow systems adopted for water conveyance	(3)
3		Explain the function of a clariflocculator in a water treatment plant?	(3)
4		Explain the objectives of providing aeration in the water treatment process ?	(3)
5		Compare slow sand filters with rapid sand filters?	(3)
6		Explain *any three* types of chlorination in a water treatment plant?	(3)
7		What are the advantages of providing a flow equalization tank in a sewage treatment plant?	(3)
8		Compare aerobic and anaerobic wastewater treatment processes?	(3)
9		Explain the advantages of a septic tank?	(3)
10		What are constructed treatment wetlands?	(3)

PART B

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

Module I

11	a)	Explain briefly the different methods for population forecasting of a city?	(12)
	b)	What are the various factors affecting water consumption?	(2)

OR

12	a)	Explain the term design period for a water treatment plant?	(4)
	b)	Explain the different types of raw water intakes with sketches?	(10)

Module II

13	a)	Explain the different types of settling in a sedimentation tank?	(10)
	b)	What are the factors to be considered while selecting a site for a water treatment plant?	(4)

OR

14	a)	The maximum daily demand at a water purification plant has been estimated as 12 million litres per a day. design the dimension of a suitable sedimentation tank (fitted with mechanical sludge removal arrangements) for the raw supplies, assuming a detention period of 6 hours and velocity of a flow as 20 cm per minute.	(14)

Module III

15	a)	Design a rapid sand filter to treat 4 million litres of raw water per day allowing 4% of filtered water for backwashing. Half hour per day is used for backwashing. Assume necessary data.	(14)

OR

16	a)	Explain the working of a pressure filter with a neat sketch?	(7)
	b)	Explain the Hardy cross method for water distribution network analysis	(7)

Module IV

17	a)	Explain the working of an activated sludge wastewater treatment plant with a neat sketch?	(14)

OR

18	a)	Explain the mechanism of functioning of a trickling filter plant with a neat sketch and also explain its advantages and disadvantages?	(14)

Module V

19	a)	Explain the working of an upflow anaerobic sludge blanket reactor with a neat sketch?	(14)

OR

20	a)	Design the dimensions of a septic tank for a small colony of 150 persons provided with an assured water supply from the municipal head works at a rate of 120 litres per person per day, assume any other data you need. Provide a neat sketch of the designed septic tank.	(14)

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