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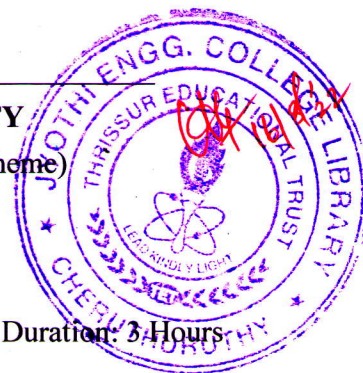
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth Semester B.Tech Degree Examination June 2022 (2019 Scheme)

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 <i>any three</i> 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)
