

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**Regular End Semester Examination – Summer 2022****Course: B. Tech.****Branch : Civil Engineering****Semester : VI****Subject Code & Name:BTCVE605A Waste Water Treatment****Max Marks: 60****Date:29/08/2022****Duration: 3.45 Hr.****Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q. 1 Solve Any Two of the following.

- A) What is dry weather flow? Explain any four factors affecting dry weather flow. CO1 6
- B) Design a Grit chamber for a maximum wastewater flow of $12000 \text{ m}^3/\text{day}$ to remove particles up to of 0.2 mm diameter, having specific gravity of 2.65. The settling velocity of these particles is 0.022 m/sec. Maintain a constant flow through velocity of 0.3 m/sec through the provision of a proportional flow weir. CO2 6
- C) Explain in brief constructional features, operation and biological process of Trickling filter. CO2 6

Q.2 Solve Any Two of the following.

- A) Explain in detail working, operation, and application of Stabilization Pond with neat and clean diagram. CO2 6
- B) Explain in detail working, operation and application of Facultative Ponds with neat and clean diagram. CO2 6
- C) Write in detail Streeter and Phelp's DO model CO2 6

Q. 3 Solve Any Two of the following.

- A) What is Membrane filtration? Write working, operation and application of Membrane filtration with neat and clean diagram.. CO3 6
- B) Enlist the effluent standards for disposal of treated effluents into sewers, surface water and irrigation as per IS-4764-1973, IS 2490-1974, IS-3306-1974. CO3 6
- C) List out various techniques used for dissolved solids removal from Industrial waste. Explain air stripping method in detail. CO3 6

Q.4 Solve Any Two of the following.

- A) Explain following diseases with respect to infections agent, occurrence, reservoir, mode of transmission and control
a) Typhoid b) Dysentery
- B) Discuss in brief essentials of rural sanitation? Explain how do you collect and dispose off (a) dry refuse (b) sullage (c) excretal waste in rural area.
- C) Discuss air born disease and Vector born disease in detail.

CO4

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Q. 5 Solve Any Two of the following.

- A) Enlist various low cost excreta disposal methods. Explain Borehole latrine and PIT Privy?
- B) Explain 5-F diagram and how it is useful to control Faecal- oral transmitted diseases
- C) Explain Life cycle of Mosquito, also write mosquito control with respective to different stages of life cycle.

CO4

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