

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech.

Branch: Civil Engineering

Semester: IV

Subject Code & Name: BTCVC402, Environmental Engineering

Max Marks: 60

Date: 18/08/2022

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) The population of a town for the past census data is given below Estimate population after 3 decades by arithmetic increase method. **CO1** 6

Year	1970	1980	1990	2000
Population in thousands	50	58	67	89

- B) Explain factors affecting rate of water demand. **CO1** (5) 6
- C) Which are the various types of demands to be considered to determine water demand for any city? **CO1** 6

Q.2 Solve Any Two of the following.

- A) What are the objectives of aeration process? Explain 'Cascade aerator'. **CO2** 6
- B) Design a sedimentation tank to treat a flow of 5MLD. **CO2** 6
- C) Compare Slow sand filter and Rapid sand filter. **CO2** 6

Q. 3 Solve Any Two of the following. (This is just a sample instruction)

- A) Explain dead end system of water distribution with its advantages and Disadvantages. **CO3** 6
- B) Find length of an equivalent pipe for the pipe network system given below if equivalent diameter is 300 mm. Use Darcy's formula. **CO3** 6

Pipe	Length (m)	Diameter (mm)
AB	270	300
BC	390	400
CD	510	200

- C) Explain with diagram combined, gravity and pumping system for supply of water with its advantages and disadvantages. **CO3** 6

Q.4 Solve Any Two of the following.

- A) Draw wastewater treatment flow sheet and explain the functions of each component **CO3 6**
- B) Determine Ultimate BOD for a sewage having 5 day BOD at 20⁰C as 200 mg/lit. Assume de-oxygenation constant as 0.12 per day. **CO4 6**
- C) Enlist various methods used for treatment of solid waste. Explain any one treatment method in detail. **CO4 6**

Q. 5 Solve Any Two of the following.

- A) What is Air Pollution? What are the sources of air pollution? **Remember 6**
Understand
- B) Explain how atmospheric stability changes based on relation between adiabatic lapse rate (ALR) and environmental lapse rate (ELR). **Remember 6**
Understand
- C) Enlist various equipment's used for controlling air pollution. Explain with neat diagram any one air pollution controlling equipment. **Remember 6**
Understand

***** End *****