DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch: Civil Engineering

Subject Code & Name: BTCVC402.Environmental Engineering Semester: IV

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

$Pn = P_0 + m$

$89 \times 2 + 3$

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

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 20^0C 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 / Understand — 6

B) Explain how atmospheric stability changes based on relation between adiabatic lapse rate (ALR) and environmental lapse rate (ELR). — Remember / Understand — 6

C) Enlist various equipment's used for controlling air pollution. Explain with neat diagram any one air pollution controlling equipment. — Remember / Understand — 6

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