Name:.....

Roll No:.....

MAR ATHANASIUS COLLEGE OF ENGINEERING (AUTONOMOUS),

KOTHAMANGALAM - 686666

DEPARTMENT OF CIVIL ENGINEERING

B.TECH SECOND SERIES EXAMINATION, OCTOBER 2026

B24CE3T05 ENVIRONMENTAL ENGINEERING (S5 CE A &B)

Duration: 1.5 Hours

Max. Marks: 40

PART A

Answer all the questions. Each question carries 3 marks.

1 A municipal treatment plant receives sewage with highly variable organic loading during the day. Suggest one biological treatment system that can accommodate such variation and give a reason. **(CO2)**

2 Excess sludge generated from sewage treatment plant occupies considerable storage volume. Which preliminary sludge-treatment operation would you recommend and why? **(CO2)**

3 Residents living near a busy highway complain of breathing difficulties. Identify two likely air pollutants responsible and mention their possible health effects. **(CO3)**

4 A school is located close to a busy road. Suggest two engineering or planning measures that can reduce noise reaching the classrooms. **(CO3)**

PART B

Answer all the questions. Each question carries 14 marks.

5 (a) An existing sewage treatment plant needs to increase its treatment capacity without making major changes to the available tank volume. Explain how an MBBR can be used for upgrading the plant. Discuss the principle, role of biofilm carriers, treatment mechanism, advantages and limitations. **(CO2)(7 marks)**

(b) A decentralized wastewater treatment facility has limited land and requires a relatively simple biological treatment system. Evaluate the suitability of an RBC for the facility. Discuss its working mechanism, treatment stages, operational requirements, advantages and limitations. **(CO2)(7 marks)**

6 (a) A thermal power plant is unable to meet the required particulate-emission limit because of the presence of fine particles in its flue gas. Recommend a suitable control system and justify its selection. Explain its operating principle, factors affecting efficiency and limitations. **(CO3)(7 marks)**

(b) A construction project is located adjacent to a hospital and residential area. Suggest a practical noise-management plan that allows construction to continue while minimizing disturbance. Consider source, transmission-path and receiver-oriented control measures. **(CO3)(7 marks)**

VISION

To develop a department proficient in all aspects of civil engineering blending theory and practice

MISSION

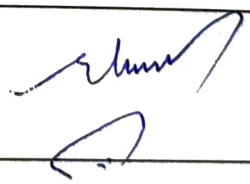
1. To impart the right combination of civil engineering fundamentals and use of modern tools to the students
2. To encourage learning with due emphasis given to professional ethics and traditional norms.
3. To enhance the knowledge base of students in liaison with practice and research
4. To encourage life-long learning

Course outcomes:
The student will be able to

CO2 Acquire fundamental understanding of wastewater engineering. (Cognitive Knowledge Level: Apply)

CO3 Gain a foundational understanding of air and noise pollution. (Cognitive Knowledge Level: Understand)

Question No.	1	2	3	4	5a	5b	6a	6b	Total Marks
CO Mapping	2	2	3	3	2	2	3	3	
Bloom Taxonomy Level	II	II	II	II	III	III	III	III	
Max. Mark	3	3	3	3	7	7	7	7	40

	Prepared By	Scrutinized By	Approved By
Name	Prof. Leenu Paul	Dr. Devika Venu	Dr. Elson John
Signature			

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