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Question Paper Code : 80965

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Fifth/Sixth/Seventh/Eighth Semester

Mechanical Engineering

CME 366 — EQUIPMENT FOR POLLUTION CONTROL

(Common to Civil Engineering/Mechanical Engineering (Sandwich))

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why Air Act was introduced in 1981?
2. Mention the selection criteria for pollution control equipment.
3. What are flocculators?
4. Distinguish between surface aerators and submerged aerators.
5. Write any two design criteria of a cyclone separator.
6. Why bag filters are used for?
7. List any two applications of using trommels.
8. Why briquetting is necessary?
9. What is the role of a grab sampler in water sampling?
10. How pollution monitoring is carried out in cold storage systems?

PART B — (5 × 13 = 65 marks)

11. (a) Discuss in detail on the main features of the environmental protection act of 1986.

Or

- (b) Compare in detail, the Hazardous Wastes (Management and Handling) Rules with the Bio-Medical Wastes (Management and Handling) Rules.

12. (a) What are Clarifiers? Explain the construction and working of any one type of clarifier with a neat diagram.

Or

- (b) With the help of a flow diagram, describe the layout and equipment sequence in a conventional municipal wastewater treatment plant.
13. (a) With a neat illustration, Explain in detail the working of an Electrostatic precipitator.

Or

- (b) During a field visit to an industry with air pollution control systems, what key operational and data should be collected? Provide a sample checklist/report format.
14. (a) Explain the working principle, operational parameters, and design criteria of a centrifuge used in solid waste dewatering with neat diagram. Mention its limitations.

Or

- (b) Describe the process of pyrolysis in solid waste treatment with a flow diagram.
15. (a) Explain in detail the working of continuous emission monitoring systems (CEMS) used in flue gas monitoring with a neat process diagram.

Or

- (b) Discuss on any two equipments used for analysis of water samples and air samples in monitoring pollution control.

PART C — (1 × 15 = 15 marks)

16. (a) Based on a field visit to a wastewater treatment plant, identify three major equipment systems used in the wastewater treatment and provide a detailed report on their operation, observed performance, and maintenance practices.

Or

- (b) During a field visit to a solid waste processing plant, what observations regarding equipment performance, material flow, and safety practices should be recorded? Provide a sample technical field report for it.