

M.Sc. DEGREE II SEMESTER EXAMINATION IN
ENVIRONMENTAL TECHNOLOGY
NOVEMBER 2000

ENVIRONMENTAL ENGINEERING

Time: 3 Hours

Maximum Marks: 50

PART - A

(Answer ***any five*** questions)

(All questions carry ***equal*** marks)

(5 x 2 = 10)

- I. 1. What is an indicator organism?
2. Explain Break point chlorination.
3. Write down the mass balance equation around a reactor using common notations.
4. State the different air quality standards.
5. Differentiate between coagulation and agglomeration.
6. What are the major sources of noise pollution?

PART - B

(Answer ***any five*** questions)

(All questions carry ***equal*** marks)

(5 x 3 = 15)

- II. i. Write down the procedure adopted to test the presence of coliforms in water.
- ii. Explain the process of adsorption as applied for colour removal from wastewater.
- iii. Why is it necessary to dewater the sludge? Explain the different methods of dewatering and drying of sludge.

(Turn over)

- iv. Describe the different types of inversions.
- v. With neat sketches describe the different mechanisms by which particulate matter are separated in fabric filters.
- vi. Explain the chute method of collecting solid waste.

PART - C

(Answer any five questions)

(All questions carry equal marks)

(5 x 5 = 25)

- III. Enumerate the common tests to be carried out in the examination of water at laboratories attached to water treatment plants and explain the significance of each of them.
- IV. Design rapid sand filter units for a population of 100,000 to be served by 200 lpcd of water supply with a rate of filtration of 150 lit. per min. per sq.m. Assume following any other data wherever necessary.
- V. Explain with neat sketches the working and constructional details of a Trickling filter.
- VI. Estimate the total hydrocarbon concentration at point 200 metres downwind from a highway on a hot summer day. The wind is perpendicular to the highway and has a speed of 5 m/s. The hydrocarbon emission rate is 1×10^{-3} gm/m.sec.
- VII. Explain with line diagrams, alkalized alumina process and *Reinluft* process for sulphurdioxide removal.
- VIII. Explain in detail the sanitary landfill method of solid waste disposal and the various measures adopted to control the leachate.