

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2009**

CE 04 803 – ENVIRONMENTAL ENGINEERING – II

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

1. (a) Explain the rational method of determining the quantity of storm water and state its use.
- (b) Mention the principles of design of a manhole in sewer line. Where is it located?
- (c) Define biochemical oxygen demand. Explain its meaning and discuss how it is determined. What is the importance in sewage analysis?
- (d) Describe the grit chambers with special reference to their, purpose, location nature of grit and design aspects of grit chambers.
- (e) Explain the three distinct stages which occur in the process of sludge digestion.
- (f) What is the theory of a septic tank? What are its design aspects?
- (g) What are the advantages and disadvantages of the method of solid waste disposal by landfilling of low lying areas?
- (h) Discuss the sources contributing to the urban air pollution.

(8 × 5 = 40 marks)

2. (a) The density of population is 300 persons/hectare in a locality. Quantity of water supplied is 135 lpcd. Area of catchment is 90 hectares. Duration of rainfall is 25 min. Calculate the total discharge in sewers of a combined system from the following data :

Type of Area	% of Area	Co-efficient of run-off
Roofs	20	0.85
Pavement and yards	30	0.7
Lawns and gardens	35	0.3
Roads	15	0.35

Or

- (b) What do you understand by "Sewer appurtenances"? Enumerate various appurtenances commonly used in sewer systems

Turn over

3. (a) Explain the physical, chemical and biological characteristics of waste water.

Or

- (b) Describe the principles of operation of Standard Rate Trickling Filter.

4. (a) Explain the sludge digestion in detail. What are the factors affecting the anaerobic digestion process?

Or

- (b) What are the method of application of sewage on land? Explain in detail.

5. (a) Explain the classification of composting technologies and discuss briefly the basic steps involved in the composting process.

Or

- (b) Write short notes on :

- (i) Air pollution sources.
- (ii) Greenhouse effect.

(4 × 15 = 60 marks)