

**M.Sc. DEGREE II SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,
APRIL 2009**

ENV/ENB 2202 ENVIRONMENTAL ENGINEERING

Time: 3 Hours

Maximum Marks : 50

PART - A

(Answer ANY FIVE questions)

(5 x 2 = 10)

- I. (a) What do you understand by Chemical Oxygen Demand (COD)?
 (b) How poly electrolytes bring about coagulation?
 (c) How does a Pressure Sand Filter work?
 (d) How Heterotrophs differ from Autotrophs?
 (e) What are the sources of Oxides of Sulphur (S_{ox}) in atmospheric air?
 (f) Name the different steps involved in solid waste handling.
 (g) What are the commonly used methods for controlling vehicular pollution?

PART - B

(Answer ANY FIVE questions)

(5 x 3 = 15)

- II. (a) Explain any two of the following terms:
 (i) Facultative Heterotrophs
 (ii) Photoautotrophs
 (iii) Pathogens
 (b) What is Absorption? What is its application in industry?
 (c) Write a note on RBC (Rotating Biological Contactor)
 (d) What is the definition of Particulate Matter? How are Particulate Matters classified on the basis of their characteristics?
 (e) What is the phenomenon of Inversion? Explain the reasons for Thermal Inversion and Subsidence Inversion.
 (f) With a neat sketch, explain the working of a Bag Filter.
 (g) What are the important factors to be considered while recommending landfill operation for solid wastes?

PART - C

(Answer ANY FIVE questions)

(5 x 5 = 25)

- III. (a) What are the chemical changes taking place during an anaerobic digestion process?
 (b) A rectangular sedimentation basin is to handle 10 million litres raw water per day. All particles having a settling velocity of 0.03 cm/sec are to be trapped. Depth of the basin is proposed to be 3.5 metre and width to length ratio is proposed to be 1 : 3. Find the detention time and basin dimensions.
 (c) Explain the principle of an attached growth process with the help of a neat sketch.
 (d) What are Adsorption Isotherms? Briefly explain Freundlich isotherm and Langmuir Isotherm.
 (e) Explain the concept of Gaussian dispersion Model for determination of concentration of gaseous pollutants.
 (f) What are the different types of equipment used for removal of gaseous pollutants from air? With sketches, explain the working of any two of the equipments.
 (g) Write short notes on any two of the following :
 (i) Electrostatic Precipitators
 (ii) Flare Stacks
 (iv) Catalytic Combustion.