N–55041

M. Sc. (Part–I) Examination
April / May – 2003
Environmental Sciences : Paper – III
(Environmental Chemistry & Monitoring)

Time : 3 Hours] [Total Marks : 75

1 (a) Explain “Buffer Capacity.”

(b) What is the pH range of a buffer solution? Mention buffers used for various pH ranges.

(c) Discuss the action of physiological buffers.

OR

1 (a) What are “colloids”? Explain their important properties.

(b) Define order of reaction and explain first order kinetics.

(c) Describe the Langmuir adsorption isotherm.

2 (a) What are the permissible limits of important anions responsible for water pollution?

(b) Explain the principle and procedure involved in the determination of fluoride and phosphate.

(c) What are the sources of lead pollution? How lead can be detected and estimated?

OR

2 (a) Discuss the effect of water pollution on aquatic life.

(b) Explain Biomagnification and its importance.

(c) Describe the methods for the determination of acidity of coloured samples.

3 Explain the techniques for:

(a) $SO_2$ monitoring

(b) NO–NOx monitoring.

OR

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3  (a) Give an account of inorganic particulate matter, show the differences from organic particulate matter.
   (b) Explain air quality standards.

4  (a) Write down the important properties of soil organic matter.
   (b) Discuss the adverse effect of soil erosion and describe how it can be minimised.

   OR

4  (a) Explain sampling of solid wastes.
   (b) What are the important decontamination techniques.

5  Write notes on any three:
   (a) Bioaccumulation
   (b) Oxidation – reduction processes
   (c) Biodegradation
   (d) COD
   (e) Global climatic effect
   (f) Earthquaks.