

Paper - II  
2007-08

**VPM's Advanced Study Centre**  
C/o. B. N. Bhandarkar College of Science, Thane.  
**Post Graduate Diploma in Applied Analytical Chemistry**  
**Final Examination 2007-2008**

25.04.2008

Paper - III (100 Marks)

5.00 - 8.00 p.m.

**SECTION - I**

Note: 1) Answers to the two sections are to be written in separate answer sheet.  
2) Each section carries 50 Marks.

Q.1) Write Short Answers for the following (Any 5) 10

- a) Define water pollution
- b) What are Air Pollutants? Name them.
- c) Name major regions of the atmosphere.
- d) Define B.O.D, C.O.D.
- e) Define soil Pollution.
- f) Name the processes involved in soil formation.
- g) Give the sources of water pollution.

Q.2) Answer Any Three of the Following 10

- a) What is soil? Give importance of soil. How soil is formed.
- b) What is Photochemical smog? Give the reactions involved in photochemical smog.
- c) What is Green House Effect? Give its impact on global climate.
- d) Discuss significance of water quality parameters:  
(i) Ammonia (ii) Iron (iii) Total solids (iv) Acidity (v) Alkalinity

Q.3) Answer Any Two Briefly 10

- a) Describe primary, secondary and tertiary procedures of sewage \ effluent treatment.
- b) Discuss the sources of Soil Pollution in detail.
- c) Write laboratory method for determination of Hardness and Dissolved Oxygen.
- d) Describe Particulates and Hydrocarbons as pollutants.

Q.4) Answer Any One from the following 10

- a) Write laboratory method of B.O.D. and C.O.D. in detail.
- b) Describe Oxides of Nitrogen (NOX) as pollutants.

Q.5) Write Notes on Any Two from the following 10

- a) Composition of Soil. b) Acid Rain.
- c) Heavy metals, Chlorides, Sulphates, Nitrates.
- d) Physical water quality parameters.

**SECTION II**

Q.1) a) Explain how the physical and physiological factors influence safety performance? 05  
b) What are legislative & statutory requirements pertaining to safety. List two each. 05

Q.2) Explain with examples engineering techniques used for accident prevention considering the hazard management. 10

Q.3) Write short notes on any 3: 10

- |  |                              |
|--|------------------------------|
| a) Manual / mechanical material handling | b) Electrostatic hazards     |
| c) Energies used in industries           | d) Chemical compatibility    |
| e) Standard operating procedure          | f) Prevention and protection |

Q.4) Define the term Process Safety and elaborate the components considered for process safety. 10

OR

Q.4) Explain any 2: 10

- |                      |  |
|----------------------|--|
| a) Risk analysis     | b) Chemical Safety                       |
| c) Material handling | d) Transportation of hazardous chemicals |

Q.5) a) What is emergency? 10

- b) How the emergency management is formed and explain their role and responsibilities.
  - c) List the type of hazards and emergencies in any chemical plant.
- =====