

N.B. : (1) All questions are compulsory.

(2) Use of log table or non programmable calculator is allowed.

1. (a) Attempt any **two** of the following :— 8
- (i) What are the various sources of SO₂ and CO as a pollutant to the air ?
 - (ii) How are the air samples collected ? Explain any two methods in details.
 - (iii) Why is the regular maintenance of the automobile important with respect to air pollution ?
 - (iv) How is the particulate matter in air determined ?

(b) Elaborate the term- Carbon credit. 4

OR

(b) What do you understand by green house effect ? 4

2. (a) Attempt any **two** of the following :— 8

- (i) Describe the quality requirement of the water, to be used as potable water.
- (ii) Give the direct and indirect sources of potable water pollution.
- (iii) Why is bore well water not recommended for drinking purpose ?
- (iv) Discuss the documentation required to be completed before bringing the bottled mineral water in the market. 4

(b) Calculate the total hardness of a water sample prepared by mixing sample A and sample B in 1:2 proportion .If 25cm³ of sample A requires 2.0 cm³ of 0.01 M EDTA for its calcium content and 25cm³ of sample B requires 2.4 cm³ of 0.01 M EDTA for its Magnesium content [At. wt. Ca = 40 and Mg = 24].

OR

(b) What are the various physical and chemical parameters which decide the quality of water ? 4

3. (a) Attempt any **two** of the following :— 8

- (i) Explain water binding capacity of soil. How does it get affected due to pollution ?
- (ii) What is the effect of noise pollution ?
- (iii) Explain the working of cooling tower with the help of suitable flow diagram.
- (iv) Describe the various disposal methods of radioactive waste.

(b) What is the role and responsibility of pollution control board ? 4

OR

(b) Explain the concept of environmental audit. How is it carried out ? 4

4. (a) Attempt any two of the following :— 8
- (i) How are the insecticides and pesticides classified ? Why are they more dangerous pollutants ?
 - (ii) Describe the chromatographic method for chloride determination in the insecticide sample.
 - (iii) What are detergents ? How are they classified ?
 - (iv) What are petroleum products ? How are they separated by fractional distillation process ?
- (b) Explain the method of determination of total alkalinity of the detergent. 4
- OR
- (b) What are the constituents present in the detergent ? Explain their role in the detergent activity. 4
5. Attempt any four of the following :— 12
- (i) Give the detail composition of pure air with percentage of any six components.
 - (ii) What is flue gas ? How is it sampled ?
 - (iii) Give the various steps involved in conversion of bore well water to bottled mineral water ?
 - (iv) How is the water from natural reservoirs purified to get the safe potable water ?
 - (v) What is soil analysis ? Highlight its importance.
 - (vi) Explain the term allergy. What is the role of pollution in allergy ?
 - (vii) Define and explain - Flash point and fire point.
 - (viii) What are the factors to be considered while selecting the detergent ?