

- N.B. : 1. All questions are compulsory
 2. Use of log table or nonprogrammable calculator is permitted
 3. Figures to the right indicate full marks.

1. (A) Attempt any Two of the following :

- (i) What is the role of particulate matter in air pollution? How is the particulate matter in air sampled and analyzed?
- (ii) Give the composition of pure air. Comment on the sources of air pollution.
- (iii) How is the sampling of gases done from the stack?
- (iv) Explain the concept of carbon credit, related to global warming.

(B) How is ammonia analyzed from air sample?

OR

(B) What are the air pollutants introduced by chemical industry? How can it be controlled?

2. Attempt any Two of the following :

- (i) Give the details of formalities required to be completed before bringing a new brand of bottled mineral water in the market.
- (ii) Discuss the purification steps taken by municipal corporations before supply of water to the residential area.
- (iii) What properties water should possess for its use as potable water?
- (iv) Explain the various sources of pollution of potable water reservoirs.

(B) A sample of water contains total hardness (as $\text{CaCO}_3 + \text{MgCO}_3$) of 348 PPM. If 25 cm³ of the sample needs 2.4 cm³ of 0.01 M EDTA for its calcium content, calculate the amount of same EDTA required for 25 cm³ of the sample for its magnesium content.

[At. Wt. Ca = 40, Mg = 24, C = 12, O = 16]

OR

(B) Compare distilled water and mineral water.

3. (A) Attempt any Two of the following :

- (i) Why is soil analyzed? How are the results put in use? 8
- (ii) Explain working of cooling towers, with suitable diagram
- (iii) Elaborate various methods for disposal of radioactive waste.
- (iv) What is the responsibility of an individual citizen in controlling pollution with respect Indian constitution? 4

(B) Differentiate sound and noise. Give various sources of noise. 4

OR

(B) What is the effect of allergy on human health? Explain any two medicines used in treatment of allergy with their side effects. 4

4. Attempt any Two of the following 8

- (i) "Pesticides are more dangerous than the pests" justify the statement.
- (ii) Discuss the classification of insecticides based on its mode of action on insects.
- (iii) How is active alkalinity of the detergent estimated?
- (iv) Explain "Flash point" and "fire point" with respect to petrochemical products.

(B) How the detergents are classified? Give various components of the detergents. 4

OR

(B) With the help of suitable diagram, describe fractional distillation of petroleum. 4

5. Attempt any Four of the following 12

- (i) Give the classification of air pollutants based on their sources.
- (ii) How is the air sample processed for analysis?
- (iii) Why is bore well water analyzed before its use?
- (iv) What do you mean by hard water? How is it converted into soft water?
- (v) What is thermal Pollution? Give its sources.
- (vi) Explain the role of Pollution Control Board in pollution free operation of an industry.
- (vii) Discuss the factors to be considered while selecting the detergent.
- (viii) What are the properties of most effective fuel?