

- N. B. :** (1) All questions are compulsory.
 (2) Use of log table or non programmable calculator is permitted.

1. (a) Attempt any two of the following :- 8
- (i) What are the various sources of pollution of potable water reservoirs?
 - (ii) How are metals recovered from effluent using electro-deposition method?
 - (iii) Discuss the Industrial effluent treatment process with the help of suitable layout.
 - (iv) Explain the terms "BOD" and "COD". Give any one industrial method for reduction of BOD and COD of the effluent
- (b) What are the various steps involved in sewage treatment process? 4
- OR**
- (b) Discuss the significance of recycle and reuse of industrial effluent after treatment. 4
2. (a) Attempt any two of the following :- 8
- (i) What are the direct and indirect effects of solid waste?
 - (ii) Elaborate precautions to be taken while handling the Bio - medical waste.
 - (iii) Discuss separation and disposal of dry cake from industrial effluent.
 - (iv) Give the importance of management of solid waste. 4
- (b) Explain any two methods for disposal of solid waste in detail. 4
- OR**
- (b) How is the non - decomposable solid waste managed? 8
3. (a) Attempt any two of the following :-
- (i) Explain the role of binders in the paint. How are they analyzed?
 - (ii) Give the method for analysis of vinyl chloride polymers.
 - (iii) Discuss the classification of plastics.
 - (iv) What is pyrolysis? Give its effect on plastics. 4
- (b) What are organosilicones? Explain the manufacturing of organosilicones with reactions. 4
- OR**
- (b) What is the impact of plastic on environment? 4

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4. (a) Attempt any two of the following :-

(i) What is dressing of ore? Explain froth flotation method for it.

(ii) List trace elements present in Bauxite. How is Aluminium estimated from it?

(iii) 450 mg of solder was opened with proper treatment and then diluted to 100 cm³. From this stock solution, 25 cm³ of diluted solution was titrated against 0.0098 M EDTA for estimation of lead. The constant burette reading was 9.8 cm³, then calculate the percentage of lead in the alloy. (At wt of Pb = 207.2).

(iv) Discuss the environmental impact of smelting processes.

(b) Give composition of any four varieties of steel'. Elaborate the role of carbon in steel.

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OR

(b) What is Zone refining? Discuss the parameters which affect the efficiency of zone refining

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5. Attempt any four of the following :-

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(i) Explain the term "sewage". How is sewage classified?

(ii) Discuss the importance of equalization tank in the effluent treatment process.

(iii) Give classification of Bio-medical waste.

(iv) Discuss 3R principle of solid waste management. .

(v) Write a note on "role of paints in corrosion resistance".

(vi) How are the additives in plastics determined?

(vii) Justify - "All ores are minerals but all minerals are not ores"

(viii) Distinguish between calcination and roasting process? .
