Q.P. Code : 39086

[Time: 2½ Hours] [Marks: 60]

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.
2. Use of log tables/non-programmable calculator is permitted.

Q.1 A) Attempt any two of the following:

i) How are the metals recovered from effluent by electrodialysis?
ii) Explain the term BOD. Discuss its importance in effluent treatment.
iii) ‘It is important to consider reuse of water obtained by effluent treatment.’ Justify the statement.
iv) How is sewage classified?

B) Discuss the nature of effluent in metallurgical industry. Add a note on its impact on water pollution.

OR

B) Describe the primary and secondary treatment for sewage.

08

Q.2 A) Attempt any two of the following:

i) Explain the term solid waste. Discuss in detail the classification of it.
ii) What is Dry Cake? Explain its importance in waste management.
iii) Write note on the disposal of municipal solid wastes.
iv) How is effective solid waste management a part of sustainable development?

B) How does the solid waste generated in residential area affect the civil life?

OR

B) Justify- Disposal of biomedical waste has to be done with necessary precautions.

08

Q.3 A) Attempt any two of the following:

i) How are the plastics classified? What is meant by fractionation of plastics?
ii) Describe method for the separation and analysis of pigments in paints.
iii) Explain the application of thermal analytical techniques in polymer analysis.
iv) List metallic impurities in plastics. Explain the effect of metallic impurities on plastic.

B) Explain the method for analysis of ethylene based plastic.

OR

B) Discuss the use of organosilicones in paint industry. Explain the environmental impact of it.

08

TURN OVER
Q.4 A) Attempt any two of the following:
   i) Discuss the application of the zone refining in the metallurgical industry.
   ii) Discuss the environmental impact of smelting processes.
   iii) Give composition of any four varieties of steel. What is the role of carbon in steel?
   iv) 0.465 gm of bronze was opened with proper treatment and then diluted to 100 cm$^3$. From this stock, 25 cm$^3$ of diluted solution was titrated against 0.09 N Na$_2$S$_2$O$_3$ for estimation of copper iodometrically. If the constant burette reading was 3.2 cm$^3$, then calculate the percentage of copper in the alloy. (At wt of Cu = 63.5).

B) How will you determine copper content of gun metal? OR

B) What is ore dressing? Explain any one physical method of ore dressing.

Q.5 Attempt any four of the following:
   i) Discuss the importance of equalization tank in the effluent treatment process.
   ii) What are the various sources of pollution of potable water reservoirs?
   iii) Write a note on segregation of dry and wet waste.
   iv) Explain the color coding system of collection bins for biomedical wastes.
   v) Discuss the impact of plastic on environment.
   vi) Enlist the additives in the plastics and enumerate their role in plastic.
   vii) How will you determine Aluminium from Magnesium?
   viii) Discuss the process of vacuum fusion.