Analytical Chemistry III

Q.P. Code : 39085

[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: 08
   i)   Discuss the importance of recycle and reuse of water from effluent.
   ii) Explain in brief the steps involved in primary effluent treatment.
   iii) What do you understand by term COD? How is it controlled in ETP process?
   iv) How are the metals recovered from effluent by application of principles of
        Electrochemistry?

B) Describe the hazardous effect of effluent from the dye industry.   04

OR

B) Explain the importance of sewage treatment with respect to environment safety.   04

Q.2 A) Attempt any two of the following :   08
   i)   'Proper care has to be taken for the disposal of biomedical waste'- Explain the
        statement with examples.
   ii) Discuss the need of segregation of dry and wet waste. Add a note on
        treatment of dry waste.
   iii) How does solid waste generated in residential area affect civil life?
   iv) Effective solid waste management is a part of sustainable development-
        Explain.

B) Explain the importance of solid cake obtained in effluent treatment.   04

OR

B) Discuss the 3-R concept of solid waste management.   04

Q.3 A) Attempt any two of the following :   08
   i)   Explain the use of paints in preventing the corrosion of metals.
   ii) How are the plastics classified? What is meant by fractionation of plastics?
   iii) Give the properties and applications of organosilicones.
   iv) What are inorganic pigments used in plastic? How are they analyzed?

B) List the different components of paints with their role.   04

OR

B) List metallic impurities in plastics. Explain the method for the determination of any   04
   one of the metallic impurities.

Q.4 A) Attempt **any two** of the following : 08

    i) What is opening of an ore? Explain any two methods for it in brief.

    ii) How is nickel estimated from cupronickel?

    iii) A sample of brass is known to contain 2% lead and 47.5% copper. If 445 mg of the sample was dissolved in suitable acid and then finally diluted to 100 cm³ as stock solution. Calculate the maximum amount of copper deposited at cathode on analyzing 25 cm³ solution by electrogravimetry.

    iv) What is high purity material? How is it achieved?

B) Explain the technique of zone refining. 04

OR

B) How is the lead content of galena estimated? 04

Q.5 Attempt **any four** of the following : 12

    i) Explain the importance of equalization tank in the effluent treatment plant of chemical industries.

    ii) With the help of block diagram explain active sludge method for reduction of BOD.

    iii) Explain the method of disposal of Bio - medical waste.

    iv) How is the solid waste classified?

    v) Explain the method of analysis of styrene based plastics.

    vi) Give the advantages and disadvantages of use of plastic.

    vii) What is carating of Gold?

    viii) Explain the environmental impact of smelting process.

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