Msc. II - Sem. IV - Oct. 2016
Analy. Chem - Paper III

QP Code : **76706**

(2½ Hours) [**Total Marks : 60**

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) How does the metallurgical industry contribute in pollution of potable water reservoirs?
(ii) Define the term "Sewage". Give importance of sewage treatment.
(iii) Discuss the primary treatment of effluent from fertilizer industry.
(iv) Explain the significance of COD and BOD with respect to pollution.

(b) Discuss electro-dialysis with reference to the recovery of metals from the industrial effluent. 4

OR

(b) With the help of suitable diagram, explain the working of industrial effluent treatment plant. 4

2. (a) Attempt any **two** of the following :– 8
(i) Discuss the importance of 3R for managing solid waste.
(ii) Justify – "Disposal of bio-medical waste needs special attention"
(iii) What are the sources of solid waste? How are they classified?
(iv) Write note on "Managment of non-decomposable solid waste"

(b) Discuss the advantages and limitations of incineration method of disposal of solid waste. 4

OR

(b) What are the occupational hazards associated with waste handling? 4

3. (a) Attempt any **two** of the following :– 8
(i) What is meant by fractionation of plastics?
(ii) How are the paints classified?
(iii) What are various ingredients of paints? Explain their role in paint.
(iv) List the inorganic pigments used in plastic. How are they analyzed?

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(b) What are organosilicones? Discuss their properties. 4

OR

(b) List metallic impurities in plastics. Explain the method of determination of any two metallic impurities. 4

4. (a) Attempt any **two** of the following :– 8

(i) How is the iron estimated spectrophotometrically from pyrolusite ore?

(ii) What do you understand by the term "Alloy"? Why is alloying required?

(iii) 0.435 gm of bronze was opened with proper treatment and then diluted to 100 cm^3. From this stock, 25 cm^3 of solution was titrated against 0.102 N $Na_2S_2O_3$ for estimation of copper iodometrically. If the constant burette reading was 2.9 cm^3, then calculate the percentage of copper in the alloy. (At wt of Cu = 63.5).

(iv) What do you understand by Smelting Process? What are its counter effects on environment?

(b) What is carating of Gold? Explain its relation with malleability and ductility of gold. 4

OR

(b) Differentiate between "Ores" and "Minerals" with suitable examples. What are different techniques of extraction of metals? 4

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

(i) Explain the role of equalization tank in the chemical industrial effluent treatment plant.

(ii) Discuss the importance of recycle and reuse of water from effluent.

(iii) What are the direct and indirect effects of solid waste generated by the industries?

(iv) Discuss the precautions to be taken in disposal of solid waste.

(v) Elaborate the role of paint in corrosion resistance.

(vi) Give the method of analysis of ethylene based plastics.

(vii) Explain the term "opening of ore". What are the suitable solvents used for opening of ores, in the sequence of choice?

(viii) Write short note on "froth flotation process of concentrating the ore"
