

Q.P. Code :09463

[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 table or nonprogrammable calculator is permitted**.

- Q.1 A Attempt any Two of the following: 08
- (i) Define the term "Sewage". Comment on Physicochemical Characteristics of treated sewage.
  - (ii) Explain the role of equalization tank in the chemical industrial effluent treatment plant.
  - (iii) Discuss electrochemical technology for the recovery of heavy metals from industrial effluent.
  - (iv) Explain the treatment and disposal of domestic sewage.
- B Comment on Permissible limits for heavy metals in the metallurgical industrial effluent. 04
- OR
- B With help of flow chart explain activated sludge process for sewage treatment.
- Q.2 A Attempt any Two of the following: 08
- i. What are the sources of solid waste? How is solid waste classified?
  - ii. Explain the colour coding and type of containers for the biomedical waste management.
  - iii. Give the importance of management of solid waste.
  - iv. Explain the role of 3R's in sustainable development.
- B Discuss the disposal of dry cake from industrial effluent treatment. 04
- OR
- B What are the health and environmental impact of solid waste?
- Q.3 A Attempt any Two of the following: 08
- i. Discuss the impact of plastic additives on the human health and environment.
  - ii. Give the method for analysis of vinyl chloride polymers.
  - iii. What are the sources of metallic impurities in plastics?
  - iv. Discuss the determination of volatile matter in the paints.
- B Describe the inorganic pigments used in the paints. 04
- OR
- B Discuss any one method for the determination of molecular weight of polymer. 04
- Q.4 A Attempt any Two of the following: 08
- i. What objectives are of ore dressing? Discuss in detail.
  - ii. Discuss the factors governing the choice of concentration process in the metallurgical industry.
  - iii. What is Smelting process? What are its counter effects on environment?
  - iv. Give composition of Cupranickel and Bronze. How is copper estimated from cupronickel?
- B What is Zone refining? Discuss the parameters which affect the efficiency of zone refining. 04
- OR
- B Explain the principle of vacuum extraction technique and its applications.

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**Q.5** Attempt any Four of the following:

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- i. Give the importance of the reuse and recycling of treated industrial effluent.
- ii. Discuss the various sources of pollution of potable water reservoirs?
- iii. Write short note on importance of management and disposal of biomedical waste.
- iv. Explain the different technologies for the disposal of non-biodegradable solid waste.
- v. What is environment impact of plastic usage?
- vi. Give the importance of the organosilicones in the surface coatings.
- vii. Write short note on estimation of iron from pyrolusite.
- viii. Distinguish between calcinations and roasting process.