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Question Paper Code : X10846

B.E./B.Tech. DEGREE EXAMINATIONS – NOV / DEC 2020

Seventh Semester

Electronics and Communication Engineering

OCY751 - WASTE WATER TREATMENT

(Common to: Computer Science and Engineering, Computer and Communication Engineering, Medical Electronics, Biomedical Engineering, Information Technology, Electronics and Telecommunication Engineering)

(Regulations 2017)

Time: 3 Hours

Answer ALL Questions

Max. Marks: 100

PART- A (10 x 2 = 20 Marks)

1. What are major indicators of water quality?
2. How do you destabilize colloids in wastewater?
3. Write the role of filter aid in the filtration process.
4. Why does an excessive amount of sludge is generated in the lime soda process of water softening?
5. What are the primary sources of causing taste and odour problems in water?
6. How to perform the calculation of the Langelier saturation index?
7. Why pretreatment is essential in an effluent treatment plant?
8. List out any four microorganisms used in the aerobic or anaerobic digestion process.
9. Define adsorption isotherms.
10. How the hydroxyl radicals remove organic compounds in AOP?

PART- B (5 x 13 = 65 Marks)

11. a) Explain the physical, chemical and biological characteristics of water. (13)

OR

b) Outline the primary, secondary and tertiary treatment employed in the effluent treatment plant with a neat block diagram. (13)

12. a) What is the driving force for the filtration process to occur and explain the various design considerations in the treatment of wastewater? (13)

OR

b) Why the boiler water requires treatment and explain how do you treat the industrial boiler water? (13)

13. a) Describe the various strategies to be adopted in the removal of iron and manganese from wastewater. (13)

OR

b) Explain the physical protection and chemical treatment of corrosion control in wastewater systems. (13)

14. a) Discuss in detail the different kinds of waste stabilization lagoons along with their possible configurations. (13)

OR

b) Give short notes on air stripping and trickling filtration and highlight their significance in the wastewater treatment process. (13)

15. a) Write the general characteristics of adsorbents and explain the principle and operation of the adsorption process in the treatment of wastewater. (13)

OR

b) Explain Fenton based advanced oxidation process for the removal of contaminants from the wastewater. (13)

PART- C (1 x 15 = 15 Marks)

16. a) Give a detailed account of the treatment of textile-based industries with a neat block diagram. (15)

OR

b) You are appointed as chief engineer in the effluent treatment division of the leather industry. The collected discharges are analyzed for their physico-chemical parameters and their levels are exceeding the EPA limits. Propose an optimal treatment technology to minimize these levels to facilitate their safe disposal from the industry. (15)