

III B. Tech II Semester Regular Examinations, April/May - 2019

WASTE WATER MANAGEMENT

(Common to Civil Engineering, Mechanical Engineering, Petroleum Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**

PART -A

1. a) What is the quality standards maintained for processing water for sugar mills? [2M]
- b) Highlight the advantages and disadvantages of Reverse Osmosis process. [2M]
- c) How do you quantify the toxicity of industrial effluents? Explain. [2M]
- d) State the standards to dispose the industrial waste into lakes. [3M]
- e) What are the standard to be maintained to dispose the waste of Paper and Pulp? [3M]
- f) Enumerate the characteristics of waste from Dairy industry. [2M]

PART -B

2. a) Describe the various water quantity and quality requirements for processing the Food processing waters. [7M]
- b) How is the water utilized for processing in sugar mills? Explain in brief. [7M]
3. a) Discuss any two methods suitable for the removal of Iron and Manganese. [7M]
- b) What are the applications, limitations and advantages of Ultra Filtration process of industrial wastewater treatment? Explain in brief. [7M]
4. a) By means of neat sketch, explain various unit operations involved in treatment of wastewater. [7M]
- b) Categorize and explain various pollutants found in industrial wastes. [7M]
5. a) Discuss the salient features of management of industrial waste disposal schemes. [7M]
- b) Highlight the suitability and challenges of any one common effluent treatment plant process. [7M]
6. a) Discuss in detail, the treatment methods needed for the wastewater generated from Fertilizers. [7M]
- b) Explain the various features involved in manufacturing process of steel plants, and the characteristics of its different effluent streams. [7M]
7. a) Write a detailed note on the treatment methods suitable for the Tanneries industry. [7M]
- b) Explain the characteristics and their impacts of the waste generated from food processing industries. [7M]



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PART -A

1. a) What is the importance of coagulation unit process in industrial wastewater treatment? [2M]
- b) Enumerate the various uses of municipal wastewater in industries. [2M]
- c) Give any six assumptions in the design of ETPs. [3M]
- d) Highlight the standards to be maintained for disposing the industrial waste into streams. [2M]
- e) State the sources and origin of waste from oil refineries. [3M]
- f) Enumerate the effects of wastes generated from pharmaceutical plants. [2M]

PART -B

2. a) Explain in detail the working principle involved in cooling industrial wastewater. [7M]
- b) Identify and detail the different quantity of processing water required for fertilizers industry. [7M]
3. a) Why and how does the removal of color and odour possible with advanced treatment methodology? Explain in detail. [7M]
- b) Explain the basic concept of Adsorption and Ion Exchange as an advanced water treatment method. [7M]
4. a) How the preservation of wastewater samples does play a significant role in its detail and accurate analysis? Explain. [7M]
- b) Describe the importance and limitations of Neutralization process in Chemical treatment of industrial wastewater. [7M]
5. a) Define the term Oxygen Sag Curve and derive the equation of the same. [7M]
- b) Explain the effects and remedial measures of disposal of industrial wastewater through land treatment. [7M]
6. a) State and briefly explain the characteristics and effects of waste generated from steel plant. [7M]
- b) What are various methods adopted for Colour removal in Paper and Pulp industry? Explain in detail. [7M]
7. a) Discuss the treatment unit operations and processes required for the treatment of liquid wastes from Tanneries industry. [7M]
- b) What are the effects and control measures need to be followed for the effluent from Dairy industry? Also explain the standards of the effluent. [7M]



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PART -A

1. a) Highlight the industrial water requirements for Cooling Water in industries. [2M]
- b) What standards are required to use municipal wastewater in any industry? Enumerate various standards. [2M]
- c) State various parameters considered in industrial waste survey. [2M]
- d) List the problems associated to dispose the industrial waste into oceans. [3M]
- e) State the effects and characteristics of wastes from Gas based power plants. [3M]
- f) What are the various standards of wastes generated from Sugar Mills? [2M]

PART -B

2. a) Explain in detail about desizing and the methods of desizing. [7M]
- b) Describe the purpose of various pretreatment terminology adopted for processing water from power plants. [7M]
3. a) Discuss the methodology of any one method of removal of iron and Manganese from wastewater. [7M]
- b) Explain the concept of Freezing in advanced wastewater treatment methodology. [7M]
4. a) Write a short note on recycling and reuse of industrial wastewater. [7M]
- b) Describe in detail the various biological unit processes adopted for industrial wastewater management. [7M]
5. a) What is an Effluent Treatment Plant? Explain in detail the design concepts and treatment level of EFT. [7M]
- b) Discuss the limitations and challenges of land treatment of industrial wastewater. [7M]
6. a) What are the pollutants that demand special attention in treatment of Fertilizers industry? Explain in detail. [7M]
- b) Discuss the various treatment methods of liquid wastes from Textile plants. [7M]
7. a) Differentiate the logic in treatment methodology of liquid wastes from Dairy and Food processing industries. [7M]
- b) Discuss the origin and effects of Distillers industry. [7M]



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1. a) What are the various sectors for which water is consumed in textile industry? [2M]
- b) Enumerate the specific developments in wastewater treatment apart from the conventional units of treatment. [2M]
- c) What is the significance of sampling of wastewater? Discuss. [2M]
- d) State the advantages of recirculation of industrial wastes. [3M]
- e) Sketch the wastewater treatment units provided for the treatment of Gas based power plants. [3M]
- f) List out the effects of the wastes generated from the pharmaceutical plants. [2M]

PART -B

2. a) Differentiate between the processing methodologies adopted for different power plants. [7M]
- b) Discuss the quality requirements of processing water for various units in Food Processing industry. [7M]
3. Write a detailed note on the following:
 - (i) Limitations and advantages of Ultra filtration process [7M]
 - (ii) Working principle and cleaning process involved in Reverse Osmosis process. [7M]
4. a) Explain in detail the characterization of wastewater as per physical and chemical methods. [7M]
- b) How and why do you go for measurement of wastewater flow? Describe in brief. [7M]
5. a) Explain the self purification process that takes place when the industrial waste is disposed off into streams and lakes. [7M]
- b) What are the various standards to be maintained for disposal of industrial wastewater into oceans? Discuss 'Marine Disposal'. [7M]
6. a) Describe the manufacturing process along with its origin of Fertilizers and pesticides industry. [7M]
- b) Discuss in brief, the pollution effects of discharging raw wastewater along with the characteristics of raw wastewater from CGPPs and GBPPs. [7M]
7. a) What are the manufacturing strategies involved in Tanneries industry? Explain in detail. [7M]
- b) State the characteristics along with the treatment methods involved in processing of Sugar Mill wastes. [7M]

