

R13

Code No: 117DW

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech IV Year I Semester Examinations, April/May - 2018****INDUSTRIAL WASTE WATER TREATMENT****(Civil Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A**(25 Marks)**

- 1.a) What are the biological properties causing pollution in industrial waste? [2]
- b) What are the effects of sewers in natural waters bodies? [3]
- c) What are the primary treatment methods? [2]
- d) How waste reduction and volume reduction is done for waste water treatment? [3]
- e) How effective is nitrification process as compared to de-nitrification process? [2]
- f) Write about the disposal of treated waste water. [3]
- g) Write the characteristics for the food processing industries. [2]
- h) Write the composition for petroleum refineries. [3]
- i) Write a short note on atomic energy plants. [2]
- j) What are the characteristics of mineral processing industries? [3]

PART-B**(50 Marks)**

- 2.a) What are the chemical properties causing pollution in industrial waste? Write a note. [5+5]
 - b) What are the effects of industrial effluents on water bodies? Discuss. [5+5]
- OR**
- 3.a) How the organic properties cause industrial pollution? Discuss. [5+5]
 - b) Explain about sources of industrial and municipal waste water. [5+5]
- OR**
- 4.a) Write the step by step process in primary treatment of waste water. [5+5]
 - b) How oil separation by flotation method is done for waste water treatment? [5+5]
- OR**
5. How waste reduction and volume reduction is used in primary treatment for waste water. [10]
 6. Explain the method for the phosphorous removal from industrial waste. [10]
- OR**
7. Write short notes on the membrane separation process method in treating industrial wastes. [10]

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8. Explain in detail the different types of methods for treatment of petroleum refineries waste. [10]

OR

9. Briefly describe the composition and the treatment for food processing industrial wastes. [10] AG A

- 10.a) Explain the composition and characteristics of tanning industries. [5+5]
b) Write about the treatment method for tanning industries.

OR

11.a) Explain about the operation and maintenance problems for common effluent treatment plants (CETP). [5+5]
b) Explain the treatment process for mineral processing industries. AG A

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