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D – 4040

Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, January 2018
(2013 Scheme)**

13.806.6 : INDUSTRIAL WASTEWATER MANAGEMENT (C)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Comment on the merits and demerits of joint treatment of raw industrial sewage and domestic sewage.
2. Explain oxygen sag curve, deoxygenation and reaeration.
3. Explain the methods for treating acidic waste.
4. BOD of sewage for 5 days at 15°C is 230 mg/l. If the deoxygenation constant at 20°C is 0.12 per day, estimate the BOD for 10 days at 25°C.
5. Enlist the various characteristics of wastewater from a sugar mill. **(5×4=20 Marks)**

PART – B

Answer **any one full** question from **each** Module.

Module – I

6. Describe the various effects of disposing industrial wastewater on streams. **20**
7. Explain in detail the volume and strength reduction of industrial waste. **20**

Module – II

8. a) Write a short note on stream sampling. **10**
b) How can you categorize the various zones of degradation of a stream ? **10**

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9. A city has decided to treat industrial wastewater and domestic wastewater at the combined STP. The population of the city is 50000, with a per capita production of domestic sewage of 200 lpcd with a per capita BOD of 68 g/day. The industrial wastewater produced is 2.5 MLD with a BOD of 1100 mg/l. The river flows with a minimum discharge of 3500 l/s at a saturated DO of 7 mg/l. If a minimum DO of 4 mg/l has to be maintained in the river, compute the degree of treatment of the combined sewage required, assuming an average expansion factor of 10%. Assume deoxygenation and reoxygenation coefficients 0.1 as per day and 0.3 respectively.

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Module – III

10. Describe the activated sludge process and stabilization pond for the removal of dissolved organic solids from industrial wastewater. Also compare both the process.
11. Discuss the various treatment methods for the removal of dissolved inorganic solids from industrial wastewater.

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Module – IV

12. With a flow diagram, explain the processes in a dairy industry. Also discuss the characteristics of waste and the treatment methods to be adopted.
13. Describe the various processes in a tannery industry with a flow chart and explain the sources of wastewater, their characteristics and propose the treatment methods.

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