Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31012

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Sixth Semester

Civil Engineering

080100038 — WASTE WATER ENGINEERING

(Common to 080330006 – Waste Water Engineering – I for fifth semester/ Environmental Engineering)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate Sewage and sewerage.
2. What is the Role of velocity of flow in a sewage system?
3. Name the classification of pumps used in sewage pumping.
4. List out the sewer appurtenances.
5. Define BOD and COD.
6. What is the purpose of screening process in a wastewater treatment system?
7. Write down the merits of Surface aeration and diffused aeration.
8. Draw a Oxygen sag curve.
9. What is Bio-filters?
10. Explain: Dilution in to sea.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the various sewerage system? Describe the merits and demerits of each system. (10)

(ii) Write short notes on:

(1) Self cleaning velocity. (3)

(2) Limiting velocity. (3)

Or

(b) (i) Discuss in detail the various materials used in sewer construction. (8)

(ii) Draw a neat sketch of a sewage ventilator and explain the necessity of sewage ventilation. (8)

12. (a) (i) What are the physical and chemical characteristics of sewage? (8)

(ii) Write short note on:

(1) Skimming process. (4)

(2) Grit removal (4)

Or

(b) Explain with neat sketch, the function and components of a radial flow circular sedimentation tank. (16)

13. (a) Draw a typical flow diagram of an activated sludge process and describe the essential features of the process. (16)

Or

(b) Enumerate

(i) Trickling filter and its advantages (6)

(ii) Contact beds (5)

(iii) Aerated lagoons (5)

14. (a) (i) What are the properties and quantity of sludges obtained from various sewerage treatment units. (8)

(ii) Write short note on:

(1) Sludge Thickening (4)

(2) Elutriation of sludge (4)

Or

(b) Why is it necessary to dewater the sludge? With help of a neat sketch describe the working of a vacuum filter. (16)

15. (a) (i) Narrate the Broad Irrigation and Sewage forming. (8)

(ii) What do you understand by sewage sickness? How it can be prevented? (8)

Or

(b) Explain with the help of diagrams various systems of plumbing used for house drainage. (16)

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