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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CE) (2011 Onwards) (Sem.-6)
ENVIRONMENTAL ENGINEERING- II
Subject Code : BTCE-606
Paper ID : [A2293]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

SECTION-A**1 Write briefly :**

- (a) Differentiate between the main sewer and trunk sewer.
- (b) What do you understand by the term "Self-cleansing velocity" in sewers?
- (c) Write the advantages of circular sewer section.
- (d) Explain the term sewer appurtenances.
- (e) Explain meaning of term fresh sewage and stale sewage.
- (f) What do you mean by anti siphonage pipe?
- (g) Discuss the function of grit chamber.
- (h) Explain the use of Macropphyte ponds.
- (i) Discuss the function of soakage pit.
- (j) Why is it necessary to remove nitrogen from the effluents from treatment plants?

SECTION-B

- 2 What do you mean by variation in flow of Sewage? Explain average flow, dry weather flow, and maximum flow.
- 3 Calculate the velocity of flow in a sewer of circular section having diameter of 1m, laid at a gradient of 1 in 400. What will be the discharge through the sewer when running half full? Use Manning's formula taking $n = 0.012$
- 4 What do you understand by an inverted siphon? Why do you construct it? What are the purposes served by an inverted siphon?
- 5 What is meant by ventilation of house sewer and how it is achieved? Also discuss the use of antisiphonage pipes in multistoried blocks.
- 6 What do you understand by advanced waste water treatment? How it is different from the conventional treatment? Give in a tabular form, important advanced water treatment processes.

SECTION-C

- 7 Explain clearly how you determine the area of secondary settling tank used in activated sludge process. How do you decide the solids loading rate for such tank?
- 8 Design an Imhoff tank to treat sewage from a small town with population of 20000 with sewage flow rate of 160 liters per capita per day. Make suitable assumption wherever needed.
- 9 Give a brief account of general composition of sewage. What is the purpose and principles involved in its treatment and disposal.