B.Tech.
(SEMESTER-V) THEORY EXAMINATION, 2012-13
ENVIRONMENTAL ENGINEERING – I

Time : 2 Hours / [ Total Marks : 50 ]

Section – A

1. Attempt all question parts. Each question carries equal marks. \(1 \times 10 = 10\)
   (a) Mention the types of water demand.
   (b) Name the different types of seasonal variations.
   (c) What is the formula used for the firefighting demand?
   (d) What is infiltration gallery?
   (e) Define pipe materials.
   (f) Write various types of conduits.
   (g) Define Hardy cross method.
   (h) What is plumbing system?
   (i) Write types of sewers.
   (j) Define small bore sewer system.

Section – B

2. Attempt any three question parts. Each part carries equal marks. \(3 \times 5 = 15\)
   (a) (i) Explain the various factors affecting the per capita demand.
        (ii) Explain any two methods of forecasting the population of town.
   (b) Explain the classification of wells.
   (c) Explain water connections, different cocks and pipe fitting.
   (d) Explain plumbing systems in buildings and houses.
   (e) Briefly explain layout and construction of sewer lines.
Section – C

Attempt all questions. Each question carries equal marks. \[ 5 \times 5 = 25 \]

3. Attempt any one part of the following:
   (a) Population of a town as obtained from the Census report is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>1941</th>
<th>1951</th>
<th>1961</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (in thousands)</td>
<td>242</td>
<td>242</td>
<td>770</td>
<td>1090</td>
</tr>
</tbody>
</table>

   Estimate the population of the town in the year 1981, 1991 & 2001 by
   (1) Arithmetic increase method
   (2) Geometrical increase method
   (3) Incremental increase method

   (b) Explain the need for protected water supply.

4. Attempt any one part of the following:
   (a) Explain any one of intake structure with neat sketch.
   (b) What are points should be kept in mind while selecting a site for intake structure?

5. Attempt any one part of the following:
   (a) Explain briefly about pressure and gravity distribution systems.
   (b) Explain water hammer and its control measures.

6. Attempt any one part of the following:
   (a) State and explain concept of service and balancing reservoirs.
   (b) Explain Newton-Raphson method and equivalent pipe method of pipe network analysis.

7. Attempt any one part of the following:
   (a) Explain the institutional and industrial waste water management.
   (b) Explain collection and estimation of storm water by different formulae.