

B.E. Degree Examination, December 2020

Fifth Semester

CE16505-ENVIRONMENTAL ENGINEERING I

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. The average quantity of water (in lpcd) required for domestic purposes according to IS code is _____
 - a) 100
 - b) 120
 - c) 70
 - d) 135
2. The enlarged end of a cast iron pipe is called _____
 - a) Lead
 - b) Socket
 - c) Hemp
 - d) Spigot end
3. When impurities are separated by the gravitation of settling particles, the operation is called _____
 - a) Sedimentation with coagulant
 - b) Plain sedimentation
 - c) Secondary sedimentation
 - d) Disinfection
4. By aeration process, dissolved iron is oxidized into _____
 - a) Ferrous oxide
 - b) Ferric oxide
 - c) Ferrous hydroxide
 - d) Ferric hydroxide
5. Compare the advantages of pressure conduits over gravity conduits.
6. Draw the process flow diagram of a water treatment plant.
7. Describe about the term water softening.
8. Discuss the functions of service reservoirs.

PART B - (4 X16 = 64 marks)

09. (a) The population of a town as per census records is given below. Calculate the population in the year 2035 using arithmetical increase method and incremental increase method. Estimate the water demand at 135 LPCD for the year 2035. (16)

Census Year	1961	1971	1981	1991	2001
Population	39250	54390	68010	83630	99850

(OR)

- (b) Explain the different types of underground sources of water with neat sketch. (16)
10. (a) Explain the different types of pipe materials used in the water transmission. (16)
- (OR)
- (b) Explain the different types of pumps used in water supply with a neat sketch. (16)
11. (a) What is disinfection? What are the factors affecting disinfection? Explain the chlorination process. (16)
- (OR)
- (b) Explain the mechanism of sand filtration. Draw a neat sketch of rapid sand filter unit (cross section) and explain the working principle. (16)
12. (a) Explain the methods of removing temporary and permanent hardness from water. (16)
- (OR)
- (b) Discuss with neat sketches the various types of layout of distribution system and state their advantages and disadvantages. (16)