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**B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019**

Fifth Semester

**CE16505– ENVIRONMENTAL ENGINEERING I***(Civil Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**Answer **ALL** questions**PART A - (10 X 2 = 20 Marks)**

	CO	RBT
1. What are the objectives of Public water supply scheme?	1	U
2. Predict the factors influencing design period.	1	U
3. Name the intake structures which are suitable for rivers.	2	R
4. What are the forces acting on water transmission mains?	2	R
5. Distinguish between unit operation and unit process with examples.	3	U
6. What are the applications of aeration in water treatment?	3	U
7. Recommend the unit process applied to remove iron and manganese from water.	4	R
8. Describe the process of adsorption.	4	R
9. List out the components of house service connections.	5	R
10. Compare gravity system of distribution and pumping system of distribution.	5	U

**PART B - (5 X16 = 80 Marks)**

11. (a) The population of a locality, as obtained from a census report, is **(16)** **1** **AP** given below:

Year	1930	1940	1950	1960	1970
Population	8000	12000	17000	22500	29000

Year	1980	1990	2000	2010
Population	37500	47000	57000	66500

Estimate the population of the locality in 2030 by

- Arithmetic increase method
- Geometric increase method and
- Incremental Increase method.

**(OR)**

- (b) Briefly discuss about the various components involved in the urban water supply system. **(16) 1 U**
12. (a) Discuss with neat sketch about the wet and dry intake tower to draw water from the reservoir. **(16) 2 U**
- (OR)**
- (b) Explain about the different types of pipe appurtenances used in water supply project. **(16) 2 U**
13. (a) Design a rapid sand filter unit for 4 million litres per day of water supply, with all its principal components. **(16) 3 AP**
- (OR)**
- (b) (i) Discuss the types and theory of settling. **(8) 3 U**  
(ii) With the help of neat sketch, explain the working principles and design concepts of a rectangular sedimentation tank. **(8) 3 U**
14. (a) Explain the Lime soda process and Ion exchange process. **(16) 4 U**
- (OR)**
- (b) Discuss about the processes of Reverse osmosis and Distillation. **(16) 4 U**
15. (a) What are the functions of service reservoir? Explain the different types of service reservoir. **(16) 5 U**
- (OR)**
- (b) Find the flow in each pipe in the loop shown. **(16) 5 AP**

