

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: CE405**  
**Course Name: ENVIRONMENTAL ENGINEERING- I**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks.*

- |   |  | Marks |
|---|--|-------|
| 1 | a) What is fire demand? How will you calculate fire demand?  | (5)   |
|   | b) Explain in brief different methods used for prediction of future population of a city.          | (10)  |
| 2 | a) What are the various factors affecting "per capita demand"?                                     | (5)   |
|   | b) Explain Logistic curve method of population forecasting.  | (10)  |
| 3 | a) List out the different factors to be considered while selecting the location of an intake well. | (5)   |
|   | b) Describe the different methods for bacteriological analysis of water.                           | (10)  |

**PART B**

*Answer any two full questions, each carries 15 marks.*

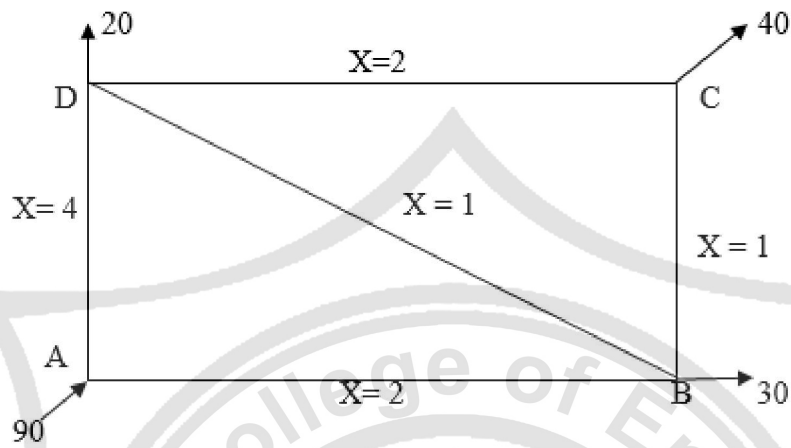
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|---|--|------|
| 4 | a) Differentiate between Type 1 and Type II settling.  | (4)  |
|   | b) Compare alum and iron salts as coagulants.  | (4)  |
|   | c) Illustrate with a sketch, the different functional zones of a rectangular sedimentation tank.       | (7)  |
| 5 | a) Explain the procedure for determination of Optimum Coagulant Dosage by Jar Test with a neat sketch. | (7)  |
|   | b) Explain the theory of sedimentation.  | (8)  |
| 6 | Design a rapid sand filter for a total demand of 6 MLD of water with all its principal components.     | (15) |

**PART C**

*Answer any two full questions, each carries 20 marks.*

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|---|---|------|
| 7 | a) Explain the various methods of disinfection of water.                  | (8)  |
|   | b) Explain breakpoint chlorination and super chlorination.                | (8)  |
|   | c) What is meant by fluoridation?   | (4)  |
| 8 | a) Explain the desalination process by electro-dialysis with neat sketch. | (5)  |
|   | b) Explain the types of aerators with suitable figures.                   | (10) |

- c) Give an account on Adsorption. (5)
- 9 a) The following pipe network consists of 5 pipes. The head loss in a pipe is given by  $h_f = X.Q^2$ . The values of X for different pipes and the flows at nodes are given in figure. Calculate the discharge in each pipe of the network. (20)



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