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



**End Semester Examination – Nov/Dec – 2017**

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|  |  |  |  |
| **Code :** | **14CE2008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **WATER AND WASTE WATER ENGINEERING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | State the importance of treating water for public supply. | CO1 | 5 |
| b. | List out population forecasting methods and explain in detail | CO2 | 15 |
| (OR) | | | | |
| 2. | a. | Describe Methods employed for ground water treatment? | CO2 | 5 |
| b. | Discuss the important water quality parameters? | CO3 | 10 |
| c. | Tabulate Water borne diseases and their causing organism? | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | What is coagulation and list out the coagulants | CO2 | 5 |
|  | b. | Derive the equation for sedimentation velocity. | CO3 | 10 |
|  | c. | Summaries Types of sedimentation tanks. | CO2 | 5 |
| (OR) | | | | |
| 4. | a. | Prepare a chart showing the permissible limits of any 10 chemical characteristics of water as per BIS drinking water standards. | CO1 | 10 |
|  | b. | Draw the layout of water supply scheme and label its different components | CO2 | 10 |
|  |  |  |  |  |
| 5. |  | Enumerate Construction and working of rapid sand filter with a neat sketch. State advantages and disadvantages | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | Discuss Various layouts of distribution system with neat sketch and list out advantages and disadvantages? | CO2 | 10 |
|  | b. | Memories the Estimation wastewater discharge | CO3 | 10 |
|  |  |  |  |  |
| 7. | a. | Write about ultimate disposal of sewage. | CO 2 | 5 |
|  | b. | What are disinfection methods. Explain any two methods? | CO 1 | 5 |
|  | c. | Name the various sources of water. | CO 1 | 5 |
|  | d. | Explain the significance of fluctuations in water demand. | CO 2 | 5 |
| (OR) | | | | |
| 8. | a. | State merits and demerits of trickling filter. | CO1 | 10 |
|  | b. | Clearly bring out the comparison between activated sludge process and trickling filter. | CO3 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Write down differences between slow sand and rapid sand filters | CO2 | 10 |
|  | b. | The populations of 5 decades from 1960 to 2000 are given below in table. Find out the population after one, two and three decades beyond the last known decade, by using geometric increase method.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Year | 1960 | 1970 | 1980 | 1990 | 2000 | | Population | 25000 | 28000 | 34000 | 42000 | 47000 | | CO1 | 10 |

ALL THE BEST