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



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **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. | Compose the methods to judge the quality of water sample in detail. | CO2 | 15 |
| b. | List and explain the water quality objectives. | CO1 | 5 |
| **(OR)** | | | | |
| 2. | a. | State and explain the factors affecting the per capita consumption. | CO1 | 5 |
| b. | Describe the layout and general outline of water treatment units. | CO2 | 15 |
|  |  |  |  |  |
| 3. |  | Explain the principle of sedimentation. Write the design factors for sedimentation tank. | CO3 | 20 |
| **(OR)** | | | | |
| 4. | a. | Distinguish between Slow sand filter and Rapid sand filter. | CO2 | 10 |
| b. | Compile a short note on oxidation ponds. | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | Explain water softening methods. | CO2 | 10 |
| b. | Enumerate the various characteristics of sewage. | CO2 | 10 |
| **(OR)** | | | | |
| 6. | a. | Describe one pipe and two pipe systems of plumbing. | CO3 | 15 |
| b. | Explain the following terms: pre chlorination and break point chlorination. | CO2 | 5 |
|  |  |  |  |  |
| 7. | a. | Explain biological treatment methods for wastewater. | CO2 | 10 |
| b. | Describe with the help of neat sketch the components of septic tank. | CO3 | 10 |
| **(OR)** | | | | |
| 8. | a. | Explain the significance of disposal of sewage by Dilution and the conditions favorable for it. | CO3 | 15 |
| b. | Differentiate between conservancy and water carriage systems. | CO2 | 5 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the basic operations involved in the activated sludge process with the help of flow diagram. | CO2 | 10 |
| b. | Explain population forecasting methods. | CO3 | 10 |