**18CE402**

**Hall Ticket Number:**

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| **II/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **July, 2021** | **Civil Engineering** | | |
| **Fourth Semester** | **Environmental Engineering** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | Define Environmental engineering | CO1 | |  |
|  | b) | What is meant by fire demand | CO1 | |  |
|  | c) | Define design period | CO1 | |  |
|  | d) | Write the equation for settling velocity. | CO2 | |  |
|  | e) | What is meant by coagulation. | CO2 | |  |
|  | f) | Define double chlorination | CO2 | |  |
|  | g) | What is the purpose of the catch basins | CO3 | |  |
|  | h) | Define BOD. Write down the equation for first order BOD | CO3 | |  |
|  | i) | What is the purpose of the skimming tank | CO4 | |  |
|  | j) | Define sludge bulking | CO4 | |  |
| **UNIT-I** | | | | | |
| 2. | a) | What are the objectives of water supply scheme. Explain the fluctuation in the water supply. | CO1 | **5M** | |
|  | b) | What is per capita water demand? Explain the factors effecting for capita water demand. | CO1 | **5M** | |
|  |  | **(OR)** | |  | |
| 3. |  | Explain different population forecasting methods in detail along with their advantages and disadvantages. | CO1 | **10M** | |
| **UNIT-II** | | | | | |
| 4. | a) | The max daily demand at a water treatment plant is 5MLD.design the dimensions of suitable sedimentation tank assume a detention period of 3 hours and the velocity of flow as 30cm/min. | CO2 | **10M** | |
|  |  | **(OR)** | |  | |
| 5. | a) | Explain any three major disinfection methods in detail | CO2 | **5M** | |
|  | b) | Differentiate between slow sand filters and rapid sand filters. | CO2 | **5M** | |
| **UNIT-III** | | | | | |
| 6. | a) | Write about different characteristics of sewage in detail | CO3 | **5M** | |
|  | b) | Explain construction, advantages and disadvantages of a manhole | CO3 | **5M** | |
|  |  | **(OR)** | |  | |
| 7. | a) | What are different sewerage systems? Explain them with their merits and demerits | CO3 | **5M** | |
|  | b) | Explain in detail about dry weather flow and wet weather flow. | CO3 | **5M** | |
| **UNIT-IV** | | | | | |
| 8. |  | Differentiate between conventional trickling filters and High rate trickling filters | CO4 | **10M** | |
|  |  | **(OR)** | |  | |
| 9. |  | Explain different design parameters involved in the activated sludge process | CO4 | **10M** | |

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