**20CE504**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **February, 2023** | **Civil Engineering** | | |
| **Fifth Semester** | **Advanced Environmental Engineering** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (14X1 = 14 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X14=56 Marks) |

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| 1. | a) | What is critical point? | CO1 | L1 | 1M |
|  | b) | What are the effects of improper sewage disposal? | CO1 | L1 | 1M |
|  | c) | Define Methanogenesis? | CO1 | L1 | 1M |
|  | d) | What are Facultative bacteria? | CO2 | L1 | 1M |
|  | e) | What is sewage sickness? | CO2 | L1 | 1M |
|  | f) | What is the difference between the Stabilization pond and oxidation ditch? | CO2 | L2 | 1M |
|  | g) | What is de-nitrification process? | CO2 | L1 | 1M |
|  | h) | What are the sanitary systems? | CO3 | L1 | 1M |
|  | i) | In which situations, emergency sanitary systems are adopted? | CO3 | L3 | 1M |
|  | j) | What are various water conveyance systems? | CO3 | L2 | 1M |
|  | k) | Industrial wastewater have BOD content greater than domestic wastewater state weather true or false. | CO4 | L3 | 1M |
|  | l) | What is neutralization process? | CO4 | L2 | 1M |
|  | m) | What is equalization process? | CO4 | L2 | 1M |
|  | n) | Mention about the source points of wastewater in sugar plant? | CO4 | L3 | 1M |
| **Unit -I** | | | | | |
| 2. | a) | Explain the self-purification process of streams and factors affecting the process. | CO1 | L2 | 7M |
|  | b) | Derive about Streeter-Phelp’s dissolved Oxygen Model? | CO1 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 3. | a) | Explain briefly about the sludge treatment.. | CO1 | L2 | 7M |
|  | b) | Interpret briefly about the volume and strength reduction of sludge digester. | CO1 | L2 | 7M |
|  |  | **Unit -II** |  |  |  |
| 4. | a) | Explain about the nitrification process. | CO2 | L2 | 7M |
|  | b) | Categorize briefly about the merits and demerits of Rotating Biological Contactor. | CO2 | L4 | 7M |
|  |  | **(OR)** |  |  |  |
| 5. | a) | Interpret briefly the “symbiosis” process in stabilization ponds. | CO2 | L3 | 7M |
|  | b) | Explain about the Extended Aeration Process? | CO2 | L2 | 7M |
|  |  | **Unit -III** | |  |  |
| 6. | a) | What are the emergency sanitary systems and explain immediate, short & long term sanitation. | CO3 | L2 | 7M |
|  | b) | Interpret about noise reduction in water conveyance systems? | CO3 | L3 | 7M |
|  |  | **(OR)** |  |  |  |
| 7. | a) | Explain the water collection and transportation challenges in sanitary systems? | CO3 | L2 | 7M |
|  | b) | Identify the various low cost toilets and also list out the places where it can be used. | CO3 | L3 | 7M |
|  |  | **Unit -IV** |  |  |  |
| 8. | a) | Summarize the treatments methods used for industrial wastewater. | CO4 | L2 | 7M |
|  | b) | Explain about methods of treatment and disposal of sugar plant wastewater? | CO4 | L2 | 7M |
|  |  | **(OR)** |  |  |  |
| 9. | a) | Explain the characteristics of industrial wastewater. | CO4 | L2 | 7M |
|  | b) | Interpret the methods of treatment and disposal of pulp and paper industrial effluent. | CO4 | L2 | 7M |

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