JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-2 EXAMINATION- APRIL 2024
B.Tech V Semester (Civil)

COURSE CODE (CREDITS): 18B11CE512 (3) MAX. MARKS: 25

COURSE NAME: SEWAGE TREATMENT AND DISPOSAL

COURSE INSTRUCTOR: NIRAJ SINGH PARIHAR MAX. TIME: 1 HR 30 MIN

Note: *All questions are compulsory. Marks are indicated against each question in square brackets. Assume suitable data if required.*

1. A 40 cm dia sewer is to flow at 0.4 depth on a grade ensuring a degree of self cleansing equivalent to that obtained at full depth at a velocity of 80 cm/sec. Find the required grade, associated velocity and discharge rate at this depth of flow. **[5]** **[CO2]**

2. Describe any two techniques for
   a. Detection of defects in the sewer pipes. **[4]**
   b. Maintenance of ventilation in the sewer lines. **[2]**

   [CO3]

3. List the important factors taken into consideration while selecting the sewer material. Also discuss the relative advantages and disadvantages of egg-shaped sewers over circular-shaped sewers. **[2+3]** **[CO3,4]**

4. For a wastewater sample, 5-day BOD at 20°C is 200 mg/l and is 67% of the ultimate. Determine the 4-day BOD at 30°C. **[4]** **[CO4]**

5. Discuss any three type of reactors with their associated dispersion characteristics and reaction orders. Draw the schematic flow sheet for aerobic and anaerobic treatment process. **[5]** **[CO4]**