

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS-2022

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 Hour and 30 Minutes

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]