

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION-2023

B.Tech-V Semester (Civil)

COURSE CODE (CREDITS): 18B11CE512 (3)

MAX. MARKS: 35

COURSE NAME: SEWAGE TREATMENT AND DISPOSAL

COURSE INSTRUCTOR: NIRAJ SINGH PARIHAR*

MAX. TIME: 2 Hours

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

1. Discuss the broad classification of waste water and their ill-effects on the surrounding environment in brief. Describe the various methods of waste water disposal. [4+3] (CO1,4)
2. Design a bar screen chamber for a population of 200000 and average sewage discharge of 100 lpcd clearly stating the design assumptions. [7] (CO3)
3. (a) Determine the dimensions of a high rate trickling filter for the following data:
Sewage flow=3MLD, recirculation=150%, raw sewage BOD=250 mg/l, BOD removed in PST=25%, desired effluent BOD=30 mg/l, nitrification not needed.
(b) What will be the change in diameter of the filter if it is to be designed as standard rate trickling filter. [3.5+3.5] (CO2,3)
4. Design a secondary sedimentation tank for average flow of 20 MLD post activated sludge tank having MLSS concentration of 1000 mg/l. Assume suitable data. [5] (CO3)
5. Give a brief write-up on the following:
 - a. Threshold Odor Number and its determination
 - b. UASB reactor
 - c. Stages in anaerobic digestion process [3x3] (CO2,3,4)