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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT  
TEST II EXAMINATION (APRIL- 2019)

B. Tech. (VI- SEM.)

COURSE CODE: 10B11CE613

MAX. MARKS: 25

COURSE NAME: Sewage Treatment and Disposal

COURSE CREDIT: 4

MAX. TIME: 1.5 HRS

*Note: Attempt all Questions. Carrying of mobile phones during exams will be treated as case of unfair means. Assume suitable data if required.*

1. Design a sewer section for  $d/D$  of 0.8 for a town having a population of 1, 20,000. The rate of water supply is 175 lpcd. Assume  $n = 0.012$  for the pipe material and maximum permissible slope is  $1/550$ . Also check for maximum and minimum velocity assuming minimum flow 0.25 times of average flow and maximum flow is 4 times the average flow conditions (4)
2. Determine the 1 day BOD and ultimate BOD for a wastewater sample whose  $BOD_5$  at  $25^\circ\text{C}$  is 300 mg/l. Also determine the  $BOD_5$  values at  $30^\circ\text{C}$ . Assume rate constant to be 0.15 (base 10) and temperature correction factor of 1.056 ( $1+1+1$ )
3. With neat sketches where appropriate, write short notes on (a) Street Inlets (b) Ball and Socket Joint (c) Manhole and (d) advantage of using PVC material over concrete in sewer construction ( $4 \times 3 = 12$ )
4. Explain the procedure for carrying out the obstruction test during layout of sewer pipes in ground (2)
5. A 1000 mm diameter concrete pipe has a slope of 1.0% and the flow is  $1.5 \text{ m}^3/\text{s}$ . If the  $BOD_5$  is 350 mg/L, determine the potential for sulfide generation when the wastewater temperature is  $35^\circ\text{C}$  (4)

JUIT WAKNAGHAT TEST II EXAM, Apr 2019