Anirban Dutta

Roll No. _____

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- April 2018

B.Tech 6th Semester

COURSE CODE: 10B11CE613 MAX. MARKS: 25

COURSE NAME: Sewage Treatment and Disposal

COURSE CREDITS: 4 MAX. TIME: 1Hr 30 mins

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.* ***Assume all necessary data suitably.***

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1. Write short notes on following: (a) Objectives of biological treatment (b) Types of biological treatment (c) Attached growth process (d) Suspended growth process. **(CO – 1,2) (6)**
2. Derive that the settling velocity of particle in sedimentation tank depends on the surface area of tank. **(CO – 3,4) (4)**
3. Design a two stage trickling filter to treat settled domestic sewage with a BOD_5 of 200 mg/L for an average flow of 10 MLD. Assume a peak factor of 2. The desired effluent BOD is 10 mg/L. Provide following information: (a) Volume and size of filter. **(CO – 3,4) (4)**
4. A staged RBC system is to be designed using following data:
   a. Inflow = 1000 m^3/d
   b. Influent soluble BOD = 90 mg/L
   c. Desired effluent soluble BOD = 10 mg/L
   d. Maximum 1st stage organic loading: 15 g $sBOD/m^2.d$
   e. Disk surface area of standard unit: 9300 m^2 **(CO – 3,4) (7)**
5. Find the dimensions of a grit chamber using following parameters:
   Peak flow, Q= 150 MLD
   Size of particle to be removed= 0.15 mm
   Specific gravity of particle = 2.65
   Kinematic viscosity, $\nu = 1.04 \times 10^{-6}$ m^2/sec
   Value of settling basin performance, n = ¼
   Efficiency of basin = 70 % **(CO – 3, 4) (4)**