Anirbhan Dutta

Roll No:.....

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- February 2019

B. Tech 8th Semester

COURSE CODE: 14M31CE214 MAX. MARKS: 15

COURSE NAME: Process Design in Environmental Engg.

COURSE CREDITS: 03 MAX. TIME: 1Hrs

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

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1. Derive the non steady state mass balance solution for a complete mix reactor with reaction, in which the liquid in the reactor is mixed completely. Also derive the steady state mass balance solution for a complete mix reactor in series. **(4+2)**

2. A flow of 20 L/min of water is to be treated in a plug flow reactor (PFR). What reactor volume (L) is needed to achieve 95% removal of a contaminant with a first order decay rate of 0.20 min^{-1}? Calculate the volume needed if the water is to be treated for 95% removal in an ideal complete mix flow reactor (CMFR). Assume steady state condition. **(4)**

3. What is DEWAT system? Discuss the advantages and disadvantages of DEWATS in brief. **(5)**