

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
MID TERM (SUMMER SEMESTER EXAMINATION) - June-2017

B.Tech/M.Tech VI Semester

COURSE CODE: 15B11BT511

MAX. MARKS: 50

COURSE NAME: Bioprocess Engineering

COURSE CREDITS: 4

MAX. TIME: 2 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q.1. Explain with figure the working principle of fluidized bed reactor and air lift bioreactor, give their advantage, disadvantage and applications. [10]

Q.2. Answer the following [10]

(a). Define bioprocess engineering and describe its scope for large scale production of a fermentation product. [5]

(b) How does immobilized cell bioreactor system find wide application in bioprocess engineering? [5]

Q.3. Answer the following [10]

(a) Define the role of mixing in bioprocess engineering and explain the mechanism of mixing in term of bioprocess engineering. [2+6]

(b) Define mixing time? [2]

Q.4. Answer the following [10]

(a) Reynolds Number [2]

(b) Newtonian and Non-Newtonian fluid [3]

(b) Define Damkohler Number and explain its role in diffusional limitation in immobilized enzyme system [5]

Q.5. write short note on the following [10]

(a) Agitation (b) Baffles (c) Rushton turbine (d) different method of immobilization of enzyme/cells.