

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

M.Sc (Biotechnology)-III Semester

COURSE CODE (CREDITS): 20MS1BT311 (03)

MAX. MARKS: 25

COURSE NAME: Bioprocess Engineering and Technology

COURSE INSTRUCTOR: Dr. Garlapati Vijay Kumar

MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory.

Q.No	Question	Marks
Q1	What are the different criteria elements have to taken care while designing any basic bioreactor? With a neat diagram explain the different parts and its functions of standard bioreactor?	4
Q2	With a neat sketch differentiate CSTR with Loop reactor and bubble column reactor in terms of working mechanism along with the H:D ratios?	4
Q3	Explain in detail about the different stages of downstream processing? With a neat diagram explain the process of Ion exchange chromatography?	4
Q4	Describe the vital role of mass transfer in reactor systems? Explain the different steps while oxygen mass transfer from gas bubble to MO's with a neat sketch?	4
Q5	Write the advantages and advantages associated with the enzyme immobilization? Discuss about the mass transfer limitation in immobilized systems?	4
Q6	Write about the following one's (a) Bioreactor "Foam Control System" (2.5 M) (b) Bioreactors for "Hairy Root Cultures" & "Stem cell Cultivation (2.5 M)	5

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