JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- 2025
M.Tech-II Semester (BT)

COURSE CODE (CREDITS): 14M11BT211 (03) **MAX. MARKS:** 25
COURSE NAME: Industrial Biotechnology
COURSE INSTRUCTOR: Dr. Garlapati Vijay Kumar **MAX. TIME:** 1 Hour 30 Min

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q1	Why do we have to give more **priority** for Downstream processing in Industrial Biotechnology? **Illustrate** the different stages under Downstream processing concept with suitable examples?	4
Q2	**Differentiate** the mechanism and procedure of "Gel-permeation Chromatography" with "Hydrophobic Interaction Chromatography" and "Affinity Chromatography"?	5
Q3	**Illustrate** the typical steps in the monoclonal antibody recovery process with a neat flowchart by including the purpose of each step? **What** characteristics make "Protein A chromatography" the first step in the antibody purification process?	4
Q4	**Quote** the seven major key building blocks of Industrial Biotechnology? **Discuss** any two building blocks information along with the current research focus?	3
Q5	**Summarize** the different characteristics of "Lactic acid Bacteria" which makes it one of the industrially important microbes? **List** the different reasons for considering it as a bacteria rather than fungi even though having "Filamentous Hyphae"?	3
Q6	**Depict** the different USP and DSP steps associated with biopharmaceutical production with a neat sketch? **Write** the advantages and disadvantages associated with the mammalian cell cultivation towards fermentation products?	3
Q7	**Discuss** about the following one's (a) Mathematical representation of laws behind "Centrifugation" and "Filtration" (1.5 M) (b) Composition of "Superose" and "Sepharose CL" (1.5 M)	3