

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT**

**TEST -2 EXAMINATION- 2024**

**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 Minutes

*Note: (a) All questions are compulsory.*

*(b) Marks are indicated against each question in square brackets.*

1. What is the different research areas associated with the white/industrial biotechnology? Discuss in detail about the different stages in downstream processing by emphasizing its purpose and two typical unit operations (with physico-chemical principle)? **(4 M)**
2. How "Ion-exchange chromatography" differs with the "Affinity chromatography" by emphasizing the procedures along with utilized ligands utilized thereof with detailed information? **(4 M)**
3. What is the different product purity attributes need to consider while opting the DSP of Mab's? Explain in detail about the different steps, purpose and conditions associated with the Mab recovery with a neat sketch? **(4 M)**
4. What are the key commercial objectives of Industrial Biotechnology? Give a note on key technological building blocks of Industrial Biotechnology and emphasize the activities and present research focus of "Metabolic engineering and modeling" and "Biocatalytic process design" disciplines? **(4 M)**
5. Summarize the following one's **(4 M)**
  - (a) Driving force and separating entity of "Pervaporation" and "Flocculation" (2 M)
  - (b) Law and mathematical notation of "Filtration" and "Precipitation" (2 M)
6. Write about the following one's **(5 M)**
  - (a) Important characteristics of microbes used in Industrial Biotechnology (2.5 M)
  - (b) Purification and characterization of Antibodies (2.5 M)

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