JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- APRIL-2023

COURSE CODE (CREDITS): 21B1WBT832 (03)   **MAX. MARKS:** 25

COURSE NAME: Bioprocess Modelling and Simulation

COURSE INSTRUCTORS: Dr. Garlapati Vijay Kumar   **MAX. TIME:** 1 Hour 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

1. What are the features associated with the Two-dimensional fluorescence sensors by explaining the obtained spectral parameters? Explain the application aspects of Two-dimensional fluorescence sensors?   **(CO III) (4 M)**

2. What are the skills required for executing the modeling and simulation in Bioprocessing? Mention the reasons for the dynamic behavior in bioprocesses?   **(CO III) (4 M)**

3. Depict the strategy for simulation of complex biochemical process? With a neat flowchart summarize the sequence of events utilized in systematic model building in bioprocess systems?   **(CO IV) (4 M)**

4. What are the different steps utilized in Bioprocess design by summarizing in step-wise manner? Explain the "uncertainty analysis" features of penicillin production through "Monto Carlo Simulation" approach?   **(CO I &CO II & CO IV) (4 M)**

5. How Empirical approach differs with the modeling approach in bioprocess modeling? How the modeling building helps further in bioprocessing development?   **(CO III) (4 M)**

6. Write about the following one's   **(CO II & CO III) (5 M)**
   (a) Bioview   (2.5 M)
   (b) Features associated with the bioprocess simulators and its examples (2.5 M)

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