

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2023

M.Tech-II Semester (BT)

COURSE CODE (CREDITS): 14M11BT211 (03)

MAX. MARKS: 35

COURSE NAME: Industrial Biotechnology

COURSE INSTRUCTOR: Dr.Garlapati Vijay Kumar

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory. (b) Marks are indicated against each question in square brackets. (c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

1. Discuss the reasons behind usage of enzymes in biofuels sector? Explain in details about the different enzymes utilization in Bioethanol and Biodiesel production? **(6 M)**
2. What is the rationale of going for extremophile explorations? Write about any two types of extremophiles along with the sources and applications? **(6 M)**
3. Discuss in detail about the postulated mechanisms of halophiles survival in extreme conditions? What are the advantages of using halophiles over other microbes for PHB production? **(6 M)**
4. Why lipase is considered as ideal enzyme for fat and oil industry? What are the advantages of using enzymes in organic media? Why 1,3- DAG considered as nutritious over TAG, Explain in terms of physiological basis? **(6 M)**
5. Explain in detail about the rationale of going of Rational Protein Design (RPD)", "Directed Evolution (DE)" and "Focused Directed Evolution (FDE)"? Write a note on the usage of different mutagenesis approaches in "RPD", "DE" and "FDE"? **(6M)**
6. Write a note on the following one's **(5 M)**
 - (a) Role of Systems Biology in IB (2.5 M)
 - (b) "Silk Fibers" as "Biomimicry" component (2.5 M)

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