

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2022

M.Tech-II Semester (BT)

COURSE CODE (CREDITS): 14M11BT211(3)

MAX. MARKS: 35

COURSE NAME: Industrial Biotechnology

COURSE INSTRUCTORS: Dr. Garlapati Vijay Kumar

MAX. TIME: 2 Hours

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

Q1. What is the necessity of usage of enzymes in biofuel sector? Discuss in detail about the set of enzymes used under 1<sup>st</sup> generation and 2<sup>nd</sup> generation biofuels with the objective and mechanism of action?

(CO IV) (7 M)

Q2. What is the need of Extremozymes in Industrial biotechnology sector? Discuss in detail about the survival mechanism of different extremozymes along with their practical applications?

(CO I & CO II & CO III) (7 M)

Q3. Discuss about the positional & fatty acid specificities of lipases? Write about the features of immobilized lipase-mediated transesterification and interesterification reactions in oil and fat-modification industries? Write a note on the "Applicability of 1,3-Diacylglycerols as anti-obesity entities"?

(CO IV) (7 M)

Q4. What is the necessity of going for directed evolution (DE) and rational protein design (RPD) of enzymes? What initial information is needed for going to DE and RPD approaches? With a neat sketch compare the RPD with the DE approaches of enzymes?

(CO V) (7 M)

Q5. Discuss about the following

(CO V)

(a) Three examples of directed evolution of enzymes towards enantioselectivity (3 M)

(b) Depict the "Industrial systems biology" with a neat sketch? (3 M)

(c) Write a note on the "Biomimicry" concept of "Gecko Adhesives"? (2 M)

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