JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATION- 2025
M.Tech.-II Semester (Biotechnology)

COURSE CODE (CREDITS): 14M11BT215 (3) **MAX. MARKS: 15**

COURSE NAME: Metabolic Engineering

COURSE INSTRUCTORS: Dr. Jitendraa Vashistt **MAX. TIME: 1 Hour**

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.	Explain the metabolic versatility of acetyl COA with respect to catabolism and anabolism. Define the energy state of an organism to get shifted from catabolic pathway to anabolic state for higher molecules formation. Justify your answer with suitable example.	3
Q2	How do you differentiate between primary metabolite and secondary metabolite? Also define the relation of both of the metabolites.	3
Q3	Explain the following with suitable example: a) Directed improvement of product formation using metabolic engineering. b) Metabolic control using enzyme repression and inhibition	3
Q4.	How do you calculate the number of ATP generated after complete beta-oxidation of Palmitic acid? Explain the sequence of above mentioned molecular process.	3
Q5.	Why liver and heart produces more number of ATPs as compared to the Skeletal muscle and brain after complete oxidation of glucose.	3