

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- MARCH-2023

COURSE CODE (CREDITS): 14M11BT215 (3)

MAX. MARKS: 15

COURSE NAME: METABOLIC ENGINEERING

COURSE INSTRUCTOR: Dr. Jitendraa Vashistt

MAX. TIME: 1 Hour

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

- Q1. If an intermediate of 'tricarboxylic acid cycle' get diminished and cell need to compensate the intermediate for maintenance of cycle, then how requirement/compensation is achieved at the biosynthetic level? (3marks)
- Q2. How do you differentiate between the 'primary' and 'secondary' metabolite. Why biosynthesis of secondary metabolites happen even when the primary metabolites get synthesized in cell/organism for energy requirements and maintenance? (3marks)
- Q3. What are the basic biochemical precursors/intermediate of a) phenyl-propanoids b) alkaloids, and c) terpenes? (3marks)
- Q4. What are the different types of biosynthetic pathways exist for metabolic pathways in a cell? Also explain the advantage of metabolic grid complexity of a cell. (3marks)
- Q5. Why Acetyl COA is considered as the 'molecule of metabolic versatility'? Explain the usages of above mentioned molecule during energy rich and energy deprived state of an organism with suitable example. (3marks)