JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2024

M.Tech-I Semester [BT]

COURSE CODE (CREDITS): 18M1WBT133 (3)   MAX. MARKS: 15

COURSE NAME: Advances in Computational Systems Biology

COURSE INSTRUCTORS: Dr. Tiratha Raj Singh   MAX. TIME: 1 Hour

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

Q1. Discuss the origin of systems biology through biological examples. Realize the initial consequences of its origin and how scientific world adopted to it? Write applications of computational systems biology.   [3]

Q.2. What is omics cascade? Discuss the relationship of various kind of biological networks through a centralized role of omics data types.   [3]

Q.3. In an experiment, a gene was knocked out. As a result of it 16 other genes were remain unfunctional. Explain which principle was actually working for this condition. Take your reference point towards one kind of biological network and justify your answer through the components of that reference network.   [3]

Q.4. Discuss all possible conditions of an operon which could be systematically used for its regulation in a microorganism.   [2]

Q.5. Elaborate following terms *w.r.t.* biological point of view: [1*4=4]

    (a) System   (b) Network

    (c) Reverse Engineering   (d) Reductionist approach

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