

Exam. Code : 206603

Subject Code : 5017

M.Sc. Bio-Informatics 3rd Semester

SYSTEM BIOLOGY & METABOLIC PATHWAY ENGG

Paper : BI-633

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Candidates are required to attempt **five** questions, selecting at least **one** question from each Section. The **fifth** question may be attempted from any Section. All questions carry equal marks.

SECTION—A

1. What is system biology ? Explain modular design and structure stability of a model.
2. Discuss a model for eukaryotic gradient sensing.

SECTION—B

3. What are genetic oscillators ? Discuss modelling of E-coli chemotaxis.
4. Explain a genetic switch in lambda phage. Discuss its significance.

SECTION—C

5. What is quorum sensing ? Discuss minimal gene set concept.
6. Explain any model for organisms and their interaction with environment.

SECTION—D

7. What is LIGAND ? Discuss features and significance of any enzyme and reaction database.
8. What is metabolic pathway engineering ? Discuss the importance of metabolic pathway databases.