2124

M.Sc. (Bio-Informatics) Third Semester
MBIN-8012: Elements of System Biology

Time allowed: 3 Hours

Max. Marks: 60

NOTE: *Attempt* <u>*five*</u> *questions in all, including Question No. 1 which is compulsory and selecting atleast one question from each Unit.*

x-x-x

I.   Answer the following:-

   a)   What is robustness of a system?

   b)   Briefly explain system steady state.

   c)   Give application of SBW.

   d)   What are genetic circuits?

   e)   Briefly explain <u>*myoplasma genitalium*</u> as a model V-cell.

   f)   Give application of E-cell.   (6x2)

UNIT - I

II.   a) Discuss purpose and adequateness of models.

      b) How is model assignment done?   (6,6)

III. Write notes on the following:-

      a) Modular design

      b) Advantages of computational modeling   (6,6)

UNIT - II

IV.   a) What is genetic programming?

      b) Discuss MathML and its applications.   (6,6)

V.   Write notes on the following:-

      a) SBML

      b) Virtual cell   (6,6)

                                                                              P.T.O.

UNIT - III

VI.   a) Discuss Endo 16 cis regulatory system.

b) Give applications of Human erythrocyte model.   (8,4)

VII.   Write notes on the following:-

a) Toogle switch with an example.

b) Lambda phage lysogeny - lysis model.   (6,6)

x-x-x