MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

VII SEMESTER B.TECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMMUNICATION ENGINEERING)
END SEMESTER EXAMINATIONS, DECEMBER 2021

SUBJECT: PROGRAM ELECTIVE - V: NATURAL COMPUTING [ICT 4051]

REVISED CREDIT SYSTEM
(17/12/2021)

Time: 75 Min   MAX. MARKS: 20

Instructions to Candidates:

❖ Answer **ALL** questions.
❖ Missing data, if any, may be suitably assumed.
❖ Detailed steps are to be written wherever required.

1A.	For Binary, Permutation, Value and Tree encoding schemes, illustrate the crossover and mutation methods along with examples and necessary justifications.	5
1B.	Design deterministic and non-deterministic finite automate which accept 00 and 11 at the end of a string containing 0, 1 in it.	3
1C.	Compare and contrast Peptide computing and DNA computing.	2
2A.	Obtain a PDA to accept the language L(M) = {ww^R	w ∈ (a+b)* } where w^R is reverse of w, by an empty state.	5
2B.	List out the DiVincenzo's criteria and also the basic properties of a quantum computer.	3
2C.	Discuss DNA splicing system with an example.	2