Dr Trinath Rajesh

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATION- February -2019

BTech VIII Semester

COURSE CODE: 15B1WBI834 MAX. MARKS: 15

COURSE NAME: Computational Molecular Evolution

COURSE CREDITS: 3 MAX. TIME: 1 HRS

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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1. What are various theories of evolution? Explain the best adapted theory in detail with a case study (points to discuss: discovery, mechanisms and proofs) of your choice. [CO: 1-3] (3)

2. Explain how codon usage bias is associated with gene expression and other related parameters? [CO: 1, 2] (2)

3. Describe the evolution of genetic code system. [CO: 1, 2] (2)

4. Justify how introns are important with reference to biological sequence evolution and introns evolutionary theories? [CO: 1, 2] (2)

5. Explain following with proper justification towards evolution: [CO: 1-3] (1.5*4=6)

   (a) Model for rate of nucleotide substitution

   (b) Genetic drift for a haploid population

   (c) Selection pressure on molecular data

   (d) Random sampling of gametes.