JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATIONS, May 2019

B.Tech VIIIth Semester (BT and BI)

Course Code: 15B1WBI834

MAX. MARKS: 35

Course Name: Computational Molecular Evolution

Course Credits: 03

MAX. TIME: 2 Hrs.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in square brackets against each question.

Q.1. What is the purpose of nucleotide substitution models? Discuss any model of your choice to study evolution for two nucleotide sequences. (CO 1-4) [5]

Q.2. Define non-functionalization time. Explain the models to compute this time. (CO 3-4) [5]

Q.3. What are nested genes? What is the significance of nested genes in genomes and evolution? What is their relation with overlapping genes? (CO 4-5) [5]

Q.4. What is exon shuffling? How it is associated with proteins function and evolution. Explain various classes of exon shuffling. (CO 4-5) [5]

Q.5. Explain following in the light of evolution:

(a) Mutations (b) Gene rearrangements (c) Purifying selection (d) GLOOM Server
(e) Selecton Server   (CO 1-5) [1*5=5]

Q.6. Define following terms/theories with a suitable example: (CO 1-5) [2*5=10]

(a) Gene duplication   (b) Natural selection   (c) Neo-Darwinism

(d) Intron theories   (e) Gene dynamics