Mid Semester Examination, 2019
Bioinformatics (LS4205)

Total Marks: 20

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1. If *A(t)* and *B(t)* are the probabilities of transition substitution and transversiton substitution, respectively, at time *t* then express *B(t)* in terms of *t* and *B'(0)*. [Marks 5]

2. Use Maximum Parsimony method to reconstruct an unrooted phylogenetic tree from the given 4 nucleotide sequences: [Marks 4]

1.	A	A	G	A	G	T	C	A	C
2.	A	A	A	T	C	T	C	C	C
3.	C	A	A	T	C	T	G	T	C
4.	G	G	G	T	G	T	G	G	C

3. Use Neighbor-Relation method to construct a tree from the given distance table. [Marks 7]

OTU	A	B	C	D
B	8			
C	7	9		
D	12	14	11	
E	14	16	13	8

4. Find branch lengths of the tree, ((A,B), (C,D)) constructed from the distance table given bellow. [Marks 4]

OTU	A	B	C
B	8		
C	7	9	
D	12	14	11

14/02/19
