

# Unit 6 - Week 4

## Course outline

How does an NPTEL online course work?

### Prerequisite Assignment

#### Week 1

#### Week 2

#### Week 3

#### Week 4

Phylogenetic trees

Phylogenetic trees II

Protein sequence analysis

Protein sequence analysis II

Hydrophobicity profiles

Patterns and PSSM profiles

Quiz : Assignment 4

Quiz : Practice Assignment 4

Bio-Informatics:Algorithms and Applications : Week 4 Feedback Form

#### Week 5

#### Week 6

#### Week 7

#### Week 8

#### Week 9

#### Week 10

#### Week 11

#### Week 12

### Download Videos

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## Assignment 4

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-02-26, 23:59 IST.**

1) Phylogenetic analysis of protein sequences is dealing about

1 point

- Similarity  
 Evolutionary relationship  
 Physicochemical properties  
 All the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Evolutionary relationship*

2) How many rooted and unrooted trees can be obtained using 5 sequences

1 point

- 105 and 1  
 75 and 105  
 105 and 15  
 275 and 105

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*105 and 15*

3) The closest pair of sequences can be obtained from

1 point

- Lowest number of mismatches  
 Highest number of mismatches  
 Average number of mismatches  
 None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Lowest number of mismatches*

4) What is the amino acid composition of Trp for the sequence GTASATGWKL?

1 point

- 20%  
 10%  
 2  
 None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*10%*

5) The molecular weight of the peptide LEEGQE is [Ala: 85; Cys: 115; Asp: 130; Glu: 150; Phe: 160; Gly:70; His: 150; Ile: 125; Lys: 145; Leu: 125; Met: 143;

Asn: 130; Pro: 110; Gln: 140; Arg: 170; Ser: 100; Thr: 115; Val: 110; Trp: 200; Tyr: 175]

- 785  
 500  
 1268  
 695

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*695*

6) Transmembrane helical segments contain

1 point

- Only hydrophobic residues  
 Mostly hydrophobic residues  
 Similar composition of hydrophobic and polar residues  
 Mainly charged residues

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Mostly hydrophobic residues*

7) Identify the amphipathic beta strand in the sequence AASITAVAATSIWKTLWIL

1 point

- ASITA  
 WKTL  
 TLWIL  
 AVAAT

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*ASITA*

8) PSSM stands for

1 point

- Position specific scanning matrices  
 Point specific scoring matrices  
 Point specific scrambled matrices  
 Position specific scoring matrices

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*Position specific scoring matrices*

9) For the alignment of DNA sequences given below, what is the value of A at position 4 in a weight matrix?

1 point

```

AATTGA
AGGTCC
AGGATG
AGGCGT
    
```

- 1.2  
 0.96  
 0  
 -1.6

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*0*

10) Normalize the numbers 5, 6, 2, 1 between 0 and 1

1 point

- 0.8, 1.0, 0.2, 0.0  
 0.75, 1.0, 0.15, 0.0  
 0.70, 1.0, 0.225, 0.0  
 None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
*0.8, 1.0, 0.2, 0.0*