NPTEL 2024 Assignment Questions
Bioinformatics: Algorithms and Applications

Week 1

1. In a protein sequence, amino acids are linked together through _____ bonds
   a. Phosphodiester bond
   b. Peptide bond
   c. Hydrogen bond
   d. Disulfide bond
2. The GC content of the DNA sequence "ACGCGAATGC" is _____%
   60
3. Purines have
   a. No aromatic rings
   b. One aromatic ring
   c. Two aromatic rings
   d. Both one and two aromatic rings
4. What is the composition of negatively charged amino acid residues in the sequence MKMLGKKLDPIILXEKKLLL?
   a. 5%
   b. 10%
   c. 0%
   d. 25%
5. What is the contribution of information technology in bioinformatics?
   a. Draw structures
   b. Evaluate the statistical significance
   c. Understand the structure and function of biological macromolecules
   d. Develop databases and web servers
6. Average hydrogen bonding energy for the sequence GTACC is (GT: -6; TA: -8; AC: -7; CC: -9; CG:-12) _____
   a. -8.75
   b. -7.5
   c. -14
   d. -17.5
7. Which of the following is the stop codon?
   a. UCU
   b. UAA
   c. UUU
   d. UAU
8. In DNA binding proteins, the interface residues have the preference for _____
   a. Hydrophobic amino acids
   b. Positively charged amino acids
   c. Negatively charged amino acids
   d. Sulphur containing amino acids

9. Difference between DNA and RNA is observed at
    a. Sugar level only
    b. Base level only
    c. Both a and b
    d. None of the above
10. How many trinucleotide codons can be formed from DNA bases (A, T, G, C)?
    a. 64
    b. 32
    c. 16
    d. 20