NPTEL 2024 Assignment Questions
Bioinformatics: Algorithms and Applications

Week 2

1. Rank the amino acids, V, D, L, A, and T in the increasing order of polarity
   a. L, V, A, T, D
   b. T, A, V, L, D
   c. D, V, L, A, T
   d. T, A, L, V, D
2. The major functional role of insulin is _____
   a. Enhancing catalytic activity
   b. Transport of molecules
   c. Regulating sugar metabolism
   d. All the above
3. The presence of a gap in an alignment refers to
   a. Only Insertions
   b. Only Deletions
   c. Both insertions and deletions
   d. Substitutions
4. For the following alignment (match score: 2; mismatch score: 0, gap: -2) what is the net score?

   ```
   AGGTGTG
   ACGA--G
   ```

   a. **2**
   b. 3
   c. 4
   d. 1
5. Which among the following PAM matrix is the most appropriate for aligning closely related sequences?
   a. PAM-1
   b. PAM-250
   c. PAM-500
   d. PAM-1000
6. Which of the following group contains only aromatic amino acids?
   a. Trp, Tyr and Thr
   b. Phe, Met and Cys
   c. **Trp, Phe, and Tyr**
   d. Gly, Val, and Ile

7. _____ is an enzyme that facilitates the conversion of ethanol to acetaldehyde.
   a. Carbonic anhydrase
   b. Alcohol dehydrogenase
   c. DNA polymerase

d. Amylase

8. How many major classes of enzymes are typically recognized in biochemistry?
   a. 2
   b. 4
   c. 6
   d. 8
9. _____ are membrane proteins that selectively allow ions to pass through the membrane.
   a. Receptors
   b. Channels
   c. Adhesion proteins
   d. Pumps
10. _____enhances the complexity of sequence alignment by increasing the number of possible alignments.
   a. Mutations
   b. Substitutions
   c. Insertions and Deletions
   d. None of the above