1. Genetic information during translation is transferred from:
   A. Protein to DNA
   B. Polymer of nucleotides to polymer of amino acids
   C. Amino acids to RNA
   D. Protein to RNA (B)

Explanation : During translation, nucleotide sequence information is converted into an amino acid sequence of proteins.

2. A codon consists of:
   A. One nucleotide
   B. Two nucleotides
   C. Three nucleotides
   D. Four nucleotides (C)

Explanation : Genetic code is a triplet code where one codon contains three nucleotides.

3. Who developed the chemical method for synthesis of RNA molecules with fixed base sequences?
   A. George Gamow
   B. Har Gobind Khorana
   C. Marshall Nirenberg
   D. Severo Ochoa (B)

Explanation : Har Gobind Khorana developed methods for synthesizing RNA molecules with fixed base sequences.

4. How many codons code for amino acids?
   A. 20 B. 61
   C. 64 D. 3 (B)

Explanation : Out of 64 codons, 61 code for amino acids and 3 act as stop codons.

5. Which codon acts as both an initiation codon and codes for methionine?
   A. UAA B. AUG
   C. UGA D. UAG (B)

Explanation : AUG serves a dual role: it codes for methionine and acts as the start codon.

6. A codon that codes for only one amino acid is called:
   A. Degenerate
   B. Universal
   C. Unambiguous
   D. Commaless (C)

Explanation : Each codon specifies only one amino acid, making the genetic code unambiguous.

7. The genetic code is called degenerate because:
   A. One codon codes for many amino acids
   B. Many codons can code for the same amino acid
   C. Codons are absent in RNA
   D. Codons stop translation (B)

Explanation : Some amino acids are coded by more than one codon, which is called degeneracy of genetic code.

8. The genetic code is almost universal because:
   A. All organisms have identical DNA
   B. Same codon generally codes for the same amino acid in different organisms
   C. All proteins are identical
   D. All mutations are prevented (B)

Explanation : The same codons generally specify the same amino acids from bacteria to humans.

9. A permanent change in the DNA sequence of an organism is called:
   A. Translation B. Mutation
   C. Replication D. Transcription (B)

Explanation : Mutation is a permanent alteration in the DNA sequence.

10. Sickle cell anemia is caused due to:
    A. Change in a single base pair of DNA
    B. Deletion of entire chromosome
    C. Change in RNA type
    D. Failure of DNA replication (A)

Explanation : Sickle cell anemia occurs due to a point mutation causing replacement of glutamic acid by valine in beta-globin chain.