How Do Mutations Alter the Genetic Code?

1. Define the term “mutation”, then distinguish between germ line mutations and somatic mutations regarding location in the body and ability to be passed to offspring.

2. Distinguish between a large-scale chromosomal mutation and a point mutation.

3. Explain how a base-pair substitution can result in:
   a. silent mutation
   b. missense mutation
   c. nonsense mutation

4. Explain how a base-pair insertion or deletion results in a frameshift and indicate why this type of mutation is so serious.

5. Give several examples of mutagens.

6. Regarding DNA damage:
   Explain the role of DNA repair enzymes; how efficient is DNA repair?

   Indicate what happens if a cell accumulates a large number of mutations.