PART A

Consider this original template DNA strand: **5'---AAGCAGCCATAACGAACGCAT---3'**

1. For what sequence of amino acids does this DNA strand code? (assume it doesn't contain introns)

2. The table below lists 5 different mutations that may occur in this DNA strand. What happens to the amino acid sequence produced as a result of each mutation? (All positions are from the 5' end of the DNA template.)

Mutation	Effect on amino acid sequence	Type of mutation
Substitution of T for G at position 14		
Insertion of T between positions 14 and 15		
Deletion of C at position 7		
Substitution of T for C at position 4		

Answers

Mutation	Effect on amino acid sequence	Type of mutation
Substitution of T for G at position 14	Change to stop codon: truncated polypeptide	Nonsense mutation
Insertion of T between positions 14 and 15	Serine is still inserted but the amino acids that follow all differ.	Frameshift mutation
Deletion of C at position 7	5th amino acid is cysteine and subsequent amino acids all differ	Frameshift mutation
Substitution of T for C at position 4	CUG and CUA code for the same amino acid (leucine). No change.	Silent mutation