Unit 5: Molecular Biology

Lecture 17: DNA Replication

1. At what phase in the cell cycle is DNA replicated?

2. List the 4 enzymes involved in DNA replication and their functions:
   a. __________________________
   b. __________________________
   c. __________________________
   d. __________________________

3. Draw a replication fork and the direction of synthesis of new strands of DNA.

Lecture 18: Transcription

1. What defines a template strand of DNA?

2. Discuss how transcription factors aid in the start of transcription, in terms of the promoter and RNA Polymerase II.

3. What occurs between initial transcription of mRNA and export of mature mRNA from the nucleus?

Lecture 19: Translation

1. Where does translation take place?

2. Draw a charged tRNA showing the anti-codon and amino acid. What role does tRNA play in translation?

3. Define the 4 mutations:
   a. Silent __________________________
   b. Missense __________________________
   c. Non-sense __________________________
   d. Frameshift __________________________