

Molecular Genetics

Ch16 Questions

1. Describe the experiments listed in the Inquiry boxes on p. 306 and 307.
2. Describe the structure of DNA (sugar, # of strands, nitrogen bases, overall structure of strands). Who determined this structure?
3. What bases match up? (Include the names of the 2 types of bases as well as the specific names)
4. What is the semiconservative model?
5. What is the origin of replication?
6. List the enzymes and their functions for DNA replication.
7. What is the difference between the leading and lagging strand?
8. What is an Okazaki fragment?
9. Explain the steps of DNA replication in prokaryotic and eukaryotic cells.
10. What are telomeres?

Ch17 Questions

1. Define the two steps of protein synthesis: transcription and translation.
2. What is a codon?
3. How is protein synthesis different in prokaryotic and eukaryotic cells?
4. Describe the three steps of transcription and the function of mRNA.
5. What is the TATA box? What is the role of the transcription factors?
6. What occurs in RNA processing and RNA splicing?
7. What is a snRNP and spliceosome?
8. Describe the structure of a tRNA and a ribosome?
9. What amino acid is always attached to the start anticodon in translation?
10. What are the steps of translation's elongation cycle?
11. What is a point mutation and list the types?
12. Read through the diagram on p.348

Ch 18 Questions

1. What is an operon? What are the parts of an operon?
2. What is the advantage of grouping genes of related function into one transcription unit?
3. Define repressible and inducible operons.
4. Why does transcription stop on the trp operon when high levels of tryptophan are present?
5. Why is allolactose needed to start transcription of the lac operon?
6. In the regulation of the chromatin structure, how does histone acetylation and DNA methylation affect transcription?
7. What is the role of the control elements in cell type-specific transcription? (p.361)
8. Read through the chapter review.