Eukaryotic Genomes: Organization, Regulation, and Evolution
Chapter 19

1. Briefly describe the levels of DNA packing in eukaryotic cells.
2. What role do histones play in DNA packing?
3. Be sure you could describe the stages in gene expression that can be regulated by eukaryotic cells.
4. Why is control of gene expression more complex in eukaryotes than in prokaryotes?
5. Describe the effects of DNA methylation and histone acetylation on gene expression.
6. Explain the roles of enhancers and transcription factors in regulating gene expression.
7. How can a group of genes be turned on simultaneously?
8. What role is played by alternative splicing in gene regulation?
9. How can the life of a mRNA be extended? Why would a cell do this?
10. Explain the role of RNAi in regulating gene expression.
11. Explain the role of oncogenes and tumor-suppressor genes in the development of cancer.
12. What are the three types of DNA found in the human genome?
13. Explain how a transposon can move within the genome.
14. How could multigene families have arisen? How are they useful to a cell?
15. Explain genomic imprinting (even though it seems like utter craziness). (Chapter 15)