Name

1. What levels of expressional control do prokaryotes and eukaryotes have in common and which ones are unique only to eukaryotes?

2. Describe the nucleosome as it is involved in early transcription using the following terms: H1, histone acetyl transferase (HAT), nucleosome, 30 nanometer fiber, linker DNA, and histone deacetylase (HDAC). *This should be comprehensive and organized to receive credit.*

3. Why was Dr. Tonegawa’s results instrumental to defining gene expression more effectively? What was it that he identified and what was its role in expression?

4. In differential gene expression, how are regulatory proteins and enhancers and silencers linked from a functional standpoint? In other words, how do they physically work with one another?

5. Detail transcription initiation in the fewest words. Bullet points, numbered steps are all adequate.

6. What are three ways that eukaryotes control gene expression post-transcriptionally? Describe each IN YOUR OWN WORDS.

7. Compare gene express in prokaryotes and eukaryotes in terms of: Packaging, alternative splicing, complexity, and coordinated expression.

8. Discuss the p53 protein. What is its function? What category of protein would you classify it as and why?