**Advanced Biology Review for 3rd 9 Weeks Exam**

*Exam will cover Units 6, 7, and 8, and a few questions from Unit 9*

*This is a* ***GUIDE*** *to help you focus on certain key topics….it should* ***NOT*** *be the only thing you study!*

1. What are the processes involved in protein synthesis and how do they occur?
2. What is the result of the process of mitosis?
3. What is happening during interphase of the cell cycle?
4. How many steps are involved in mitosis and what are they, and in what order?
5. What happens during metaphase?
6. What happens during telophase?
7. When does replication of the DNA occur?
8. How can environmental factors affect expression of certain genes?
9. How do microRNA’s play a role in gene expression?
10. What could be the result of a cell cycle disruption that leads to failure to synthesize necessary proteins?
11. Cyclins regulate cell division….what could happen if too much cyclin is manufactured by the cell?
12. Protists are one-celled organisms…they do NOT mate…all bats give live birth…these are facts to help you answer a question regarding an investigation.
13. Make sure you understand natural selection, and how it relates to survival of a species.
14. Sexual selection is when members of a species have certain characteristics that are desirable to the opposite sex. What trait in male elk might be desired by female elk?
15. Do you know what a cowbird is? Not an egret….
16. About the cowbirds again….
17. A PROTIST is a one celled microscopic organism….causes malaria…sickle cell disease is a genetic disorder…when you get to this question….READ IT CAREFULLY!
18. If scientists add a portion of DNA from one organism into another, this is called genetic engineering…when that is done it is usually to benefit humans….can’t really tell you more here.
19. What are the nitrogenous bases in DNA?
20. Remember that there are distinct bands on chromosomes that specify traits.
21. All organisms contain the same molecule know as DNA…made of the same components which are?
22. What is the purpose of transcription?
23. What happens during translation?
24. Another question about gene expression…..
25. Review point mutations….insertion, deletion, and substitution.
26. Be able to complete a simple punnet square and answer questions relating to it
27. Be able to complete a dihybrid punnet square and answer questions relating to it
28. What kind of cells are created through meiosis and how many chromosomes do they have compared to the parent cell?
29. How are meiosis and mitosis different?
30. How is meiosis critical to sexual reproduction?
31. How is meiosis critical to sexual reproduction?
32. What is intermediate inheritance? Be able to complete a punnet square of it
33. What can explain why giraffes of today have long necks, and evidence shows giraffes of the past with shorter necks?
34. What is the role of RNA?
35. Energy has nothing to do with cell differentiation…just sayin’
36. What is the complementary strand of DNA? ATCCCGGAATATATG
37. If scientists genetically modify a cell for BENEFICIAL use, it would not be to create an infectious form! Just sayin’….
38. Make sure you can look at a completed dihybrid cross punnet square, and recognize the genotypes and phenotypes that are represented in the offspring.
39. Review genetic engineering
40. Will genes that help a species survive increase or decrease within a population?
41. SA – Three differences between mitosis and meiosis
42. SA – Can you draw crossing over?
43. SA – Complete a dihybrid cross punnet square…you MUST know the difference between heterozyzous and homozygous!