Biology end of the year material review

1. What elements make up carbohydrates, nucleic acids, proteins, and lipids (chapter 2.3)?

2. What are the subunits (monomers) of protein? (pg 47)

Cell Biology (Unit 3)

3. What is a semipermeable membrane (pg 83)?

4. What is an enzyme (pg 55)?

5. What is the difference between prokaryotes and eukaryotes (Pg 72)?

6. What does the endoplasmic reticulum do (pg 76)?

7. What is the function of the golgi apparatus (pg 76)?

Cell Energy (Unit 4)

8. What do chloroplasts do? pg 79

9. What is needed for photosynthesis and what is created (pg 105)?

10. What do mitochondria do (pg 77)? What do they break down and what is created (115)?

DNA (Unit 5)

11. What is the shape of DNA and what are the subunits? (pg 230 and 232)

12. How does DNA differ from RNA (pg 239)

13. If one side of DNA reads ATCGGA, what will the complimentary strand be?

14. If a strand of DNA reads CCGGAATT, what will the transcribed RNA strand be ?

15. Summarize the process of transcription (pg 240)

16. Summarize the process of translation (pg 243)

17. What is the role of the ribosome or rRNA in translation?(pg 240)

18. What is the role of tRNA in translation?(pg 240)

19. What is the role of mRNA in translation?)(pg 240)

20. Use the table on pg 244 to predict the sequence of amino acids from the sequence of codons in this mRNA

a u g u u u c c g c a g

21. What is a mutation? (pg 252)

Genetics (Unit 6)

22. What happens to chromosome numbers during meiosis? Pg 171

23. How many copies of each chromosome are found in gametes? Pg 170

24. What type of cell undergoes meiosis? What type of cells are formed Pg 170

25. What is Mendel's Law of segregation? Pg 179

26. What is Mendel's Law of Independent Assortment (pg 186)

27. What is fertilization? Pg 170

28. How do chromosomes determine an individual's sex? Pg 169

29. A TT (tall) plant is crossed with a tt (short plant). What percentage of the offspring will be tall?

30. A Tt plant is crossed with a Tt plant. What percentage of the offspring will be short?

31. A heterozygous round seeded plant (Rr) is crossed with a homozygous round seeded plant (RR). What percentage of the offspring will be homozygous (RR)?

32. A homozygous round seeded plant is crossed with a homozygous wrinkled seeded plant. What are the genotypes of the parents? _____ x _____What percentage of the offspring will also be homozygous?

33. If a homozygous tall, homozygous round seeded plant is crossed with a heterozygous tall, heterozygous round seeded plant, what percent of the offspring would be homozygous tall, homozygous round?

34. The gene for color vision (C) is dominant to the gene for color blindness (c) and is located on the X chromosome. If a color blind man and a woman with homozygous normal color vision have children, what are the chances that they will have a colorblind child?

35. Why do some lethal (deadly) alleles continue to be passed from generation to generation?

Genetic Technology (unit 6)

36. What useful products can be produced with genetic engineering? (277-278)

Evolution (Unit 7)

37. How can mutations affect natural selection (329)

38. If all members of a species were the same, what might happen if there were an environmental change?

39. Explain the process of natural selection? (pg 306)

40. What is genetic drift and how can it affect a population? (pg 336)

41. What is geographic isolation and how does it affect speciation? (pg 346)

Ecology (Unit 8)

42. What is biodiversity? (pg 403)

43. What are some threats to biodiversity? (pg 499-500)

44. What is a limiting factor and what are some examples? (pg 443)

45. What is immigration and how can it affect populations size?(pg 440)

46. What is emigration and how can it affect population size?(pg 440)

47. Explain the water cycle (pg 413)

48. Explain the carbon cycle (pg 414)

49. Explain the nitrogen cycle (pg 415)

50. What happens to the energy in an energy pyramid as we go up each level? What happens to the energy that is lost? (pg 418)

51. What are producers and why are they important to an ecosystem? (pg 406)

52. What are decomposers and why are they important to an ecosystem? (pg 409)

Bacteria and Viruses (Unit 9)

53. What are the differences between bacteria and viruses (pg 544)?

54. How can a vaccination protect someone from disease (pg 553)?

Physiology – (Unit 10)

55. What two systems work together to provide your cells with oxygen and remove carbon dioxide? (pg 910)

56. What system communicates between different parts of your body and the environment (pg 874)

57. What part of the brain causes the pituitary gland to release hormones (pg 898)

58. What does the pituitary gland do (pg 898)

59. What is a neuron (pg 876)

60. What are the types of neurons and what do they do (pg 877)

61. What is your bodies first line of defense (pg 945)

62. What are antibodies and how do they work? (pg 947)

63. What is a vaccine and how does it work (pg 956)