**100 Questions to Know for the Regents**

1. What are the levels of organization in biology? (organelle to organism)
2. What is diffusion?
3. What is the diffusion of water called?
4. What happens to an onion cell in salt water? Draw it before and after.
5. How does starch indicator react in the presence of starch?
6. How does a glucose indicator test work?
7. What kinds of molecules are permeable to the cell membrane? Give examples.
8. Is starch permeable to the membrane? Why or why not?
9. What is photosynthesis?
10. Where do organic molecules store energy? How do we release the energy?
11. What is the equation for photosynthesis?
12. In which organelle does photosynthesis occur?
13. Where does cellular respiration occur?
14. What is the equation for cellular respiration?
15. What is ATP used for?
16. Can ATP be transferred? What happens to it?
17. What is an enzyme?
18. What type of biological molecules are enzymes?
19. How many reactions can an enzyme catalyze?
20. What specific environmental conditions do enzymes function in?
21. \*What happens if an enzyme is not at its optimum temperature/pH?
22. \*What happens if an enzyme is out of its pH/temperature range?
23. What is the function of the circulatory system? What organs are involved?
24. What is the function of the respiratory system?
25. Describe how the body maintains homeostasis during exercise.
26. What is the purpose of the digestive system?
27. When do blood sugar levels increase?
28. Describe how insulin helps maintain homeostasis in the body.
29. What are hormones? How do they travel?
30. Where is the hormone message received?
31. What are the female reproductive hormones?
32. What are the male reproductive hormones?
33. What are the female reproductive organs?
34. What is the male reproductive organ?
35. What is MEiosis?
36. What is fertilization?
37. What is the zygote?
38. How does the zygote grow in size? How do cells do specialized jobs?
39. Why are the first 8 weeks of life so important? What is the developing organism called at this stage?
40. What is the more advanced organism called after 8 weeks?
41. What factors can put the embryo/fetus at risk during pregnancy?
42. Where does the placenta form, and what is its purpose?
43. What is the purpose of the immune system? What are the cells of the immune system?
44. What are 2 jobs of white blood cells?
45. What molecules (on pathogens, peanuts, or transplanted organs..) trigger the immune system to respond?
46. What does the immune system produce if it recognized an antigen? (What does the BODY make to flag it?)
47. What is in a vaccine?
48. How does the immune system respond to a vaccine?
49. What is an allergy?
50. What disease does HIV cause? How does this affect the body?
51. What are genes?
52. How might the Regents represent genes in a picture?
53. Before DNA can code for a protein, it must be translated into…
54. mRNA is read by the ribosome to create a chain of….
55. What happens if the amino acid sequence is changed?
56. What is selective breeding?
57. What is the **technique**/**procedure** used to insert a gene from one organism into another?
58. What are the molecules used to “cut” and “insert” genes?
59. If an organisms’ DNA is changed, through mutation or genetic engineering, can it be passed on?
60. If a body cell is mutated, where and how will it be passed on?
61. In order for a mutation to be passed on to an offspring, where must the mutation occur?
62. What is an adaptation?
63. Name 2 adaptations of a bird…
64. Overtime, what happens to the population of the “best fit” organisms?
65. What happens to organisms that are not fit for an environment?
66. What is genetic recombination, and when does it occur?
67. Why is genetic variation important?
68. How can an insect become resistant to pesticides?
69. What is the most important source of evidence for evolution?
70. When does a species go extinct?
71. Are extinctions common?
72. What is paper chromatography used for?
73. What is gel electrophoresis?
74. What do scientists use to cut the DNA into fragments?
75. Which fragments travel the furthest in gel electrophoresis?
76. Which species are most closely related in gel electrophoresis?