Biology Midterm Exam

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_ Block: \_\_\_

1. The first step of scientific inquiry is observation which must be carefully made.
2. A scientific theory is supported by a large amount of data and it explains many observations.
3. A hypothesis is an educated guess.
4. Proteins contain amino acids joined together by peptide bonds.
5. Sugars and starches are both carbohydrates.
6. Enzymes are proteins.
7. Carbohydrates are composed of the elements carbon, hydrogen and oxygen.
8. Proteins are composed of the elements carbon, hydrogen, oxygen and nitrogen.
9. Most of the photosynthesis in a plant takes place in the palisade mesophyll of the leaf.
10. The waxy cuticle (cutin) of a leaf prevents water loss.
11. Sugar and other polar substances dissolve in water because water is a polar molecule.
12. A guard cell of a leaf controls the opening of the stomata.
13. The leaf is attached to the stem by the petiole.
14. The stomata of leaves are closed at night.
15. The blade is the widest part of the leaf.
16. Energy is released from ATP when a phosphate is removed.
17. Energy is stored in ATP when a phosphate is added.
18. When ATP loses a phosphate it becomes ADP.
19. Carbohydrates are broken down to make ATP.
20. It takes a large amount of heat to raise the temperature of water because water has a high specific heat.
21. Photosynthesis uses sunlight to convert water and carbon dioxide into oxygen and high energy sugars.
22. The products of cell respiration are the reactants of photosynthesis.
23. Aerobic processes use oxygen.
24. Lactic acid fermentation takes place in muscles after heavy exercise.
25. The two (2) main types of anaerobic respiration are lactic acid fermentation and alcoholic fermentation.
26. An increase in light intensity increases the rate (speed) of photosynthesis.
27. Glucose and oxygen are the reactants of cell respiration.
28. Oil and water do not mix because water is polar and lipids are nonpolar
29. Amino acids are joined together with peptide bonds to make proteins.
30. The diffusion of water across a selectively permeable membrane is called osmosis.
31. Flower petals attract pollinators
32. The filament and anther are male flower parts.
33. Pollen is produced in the anther of the flower
34. The female parts of a flower are the stigma, style and ovary.
35. The pollen from the male anther “sticks” to the stigma.
36. The ovary swells and becomes the fruit.
37. In ferns, spores produce the gametophyte.
38. In ferns, sporophyte produce the spores.
39. In ferns, gametophytes produce the gametes (sperm and eggs).
40. Xylem moves water from the roots to the leaves
41. Phloem moves sugars (photosynthetic products) from leaves throughout the plant.
42. In plant cells, a cell plate forms during cytokinesis. This does not occur in animal cells.
43. The two main phases of cell division in the nucleus are mitosis and cytokinesis.
44. A chromosome consists of 2 sister chromatids joined by a centromere.
45. Body cells reproduce in a process called mitosis.
46. Gametes (sperm and egg) are produced in a process called meiosis.
47. A lipid consists of a glycerol bonded to a fatty acid.
48. Lipids store larger amounts of chemical energy than carbohydrates.
49. The mitochondria is the “powerhouse” of the cell because it provides energy.
50. The primary (main) function of DNA is to store genetic information.
51. Energy is released and absorbed during a chemical reaction. If a reaction in one direction releases energy, the reaction in the other direction absorbs, or takes in, energy.
52. Enzymes are biological catalysts.
53. The cell wall supports and protects the cell.
54. The Golgi apparatus sorts, packages and ships materials throughout the cell.
55. When ATP energy is needed to move particles across the plasma (cell) membrane, the type of transport is called active.
56. Passive transport does not require ATP energy.
57. A catalyst speeds up the rates of a chemical reaction.
58. The pH Scale ranges from 0 to 14.
59. A substance with a pH of 7 is neutral.
60. On the pH Scale, 0 is a strong acid and 14 is a strong base.
61. Enzymes decrease activation energy and speed up chemical reactions.
62. In eukaryotic cells, DNA is located inside the nucleus.
63. In prokaryotic cells, DNA is scattered throughout the cytoplasm.
64. Plants cells have chloroplasts, a large central vacuole and a cell wall.
65. Diffusion takes place from an area of high concentration to an area of low concentration.
66. If an animal cell is placed in pure or distilled water, the cell will swell and burst because water will move into the cell. Hint: The number of solutes inside the cell is greater than the number of solutes outside.
67. The function of a chloroplast is to capture sunlight and carry out photosynthesis.
68. The cell membrane (phospholipid bilayer) is a selectively permeable membrane.
69. Ribosomes join amino acids together to make proteins.
70. The Cell Theory:

All organisms (living things) are made of cells

Cells are the basic unit of life.

Cells arise from preexisting cells.