GCSE Biology Intake Assessment 1

“Life is Complicated”

1. What are stem cells?
   1. Cells that keep plants upright while helping transport water and CO2 between the roots and leaves.
   2. Cells found in many tissues, though most concentrated in the bone marrow, able to become other cells in response to poorly understood triggers.
   3. Cells that control the growth of human hair.
   4. Heat-generating tissues located near your heart.
2. How many chromosomes do you have? Are you haploid, diploid, or triploid?
3. What is the role of mRNA?
   1. To serve as a template for DNA replication
   2. To deliver messages to the brain
   3. To serve as a template for protein production
   4. To trick cells into killing themselves
4. You are going to spend the next 3 months in the frozen north. You’ve calculated you’ll be needing an average of 3000 calories (1 calorie = 4.18 kJ) each day to avoid death by hypothermia. Plan out how many grams (approximately) of protein, carbohydrates, and fat you’ll want to eat each day (1g protein = 4 cal; 1g carbohydrate = 4 cal; 1g fat = 9 cal) to have a reasonably balanced diet.
5. How does the Nitrogen Cycle work, and why is it so important to life on Earth?
6. There are two kinds of respiration—aerobic and anaerobic. What are their byproducts in yeast?
7. Which of the following is not one of DNA’s nitrogenous bases?
   1. Cytosine
   2. Galactose
   3. Thymine
   4. Adenine
8. Mushrooms are the fruiting bodies of:
   1. Certain fungi
   2. Bacterial colonies
   3. All fungi
   4. Protista
9. You are a member of what phylum?
   1. The chordates
   2. The arthropods
   3. The molluscs
   4. The angiosperms
10. If you fall asleep in a forest, and wake up to find a mushroom growing on your leg, your leg is being:
    1. Decomposed
    2. Hydrolyzed
    3. Chewed
    4. Inoculated
11. When I was an embryo, I was:
    1. A fertilized egg
    2. A small ball of cells
    3. Somewhere between a fertilized egg and a small ball of cells
    4. Frozen, awaiting implantation into a host organism
12. What are proteins composed of?
    1. Little repeating subunits called protides
    2. Nitrogenous bases
    3. Slightly acidic subunits containing carbon, nitrogen, oxygen, and hydrogen
    4. Cells
13. If your dad is color blind and your mother is not (but her father was), what is the probability that you are color blind (hint: draw a Punnet Square)—
    1. If you’re a boy?
    2. If you’re a girl?
14. When I ate some delicious 回锅肉 (twice-cooked pork), my stomach and large and small intestines all had to work very hard to digest so much deliciousness. What exactly did they have to do, and how did they do it?
15. After digestion, it was my mitochondria’s turn to get to work. What do my mitochondria do with all of that food? (If you don’t know, can you at least tell me what a mitochondrion is, and where I might find one?)
16. The carbon cycle is an amazing, dynamic global equilibrium that impacts (and is impacted by) which of the following? Circle all that apply:
    1. The total availability of carbon for uptake by plants as they go about their daily plant business
    2. Global and regional temperature changes
    3. The relative acidity of the oceans
    4. Atmospheric pressure
    5. Global biomass
    6. Your likelihood of getting sunburned on a bright day
17. Can you describe the function of the different parts of the human heart? (drawing a picture may help you remember)
    1. Left Ventricle and Left Atrium
    2. Right Ventricle and Right Atrium
    3. Arteries
    4. Veins
    5. Valves
18. An enzyme is a:
    1. Protein able to catalyze biochemical reactions without being deactivated by those reactions
    2. Special zyme able to increase uptake of ribonuclease
    3. Special protein that can only be used once, but which makes things happen faster
    4. Colorful compound located in the nucleus of a plant cell, which protects DNA from harmful sunlight.