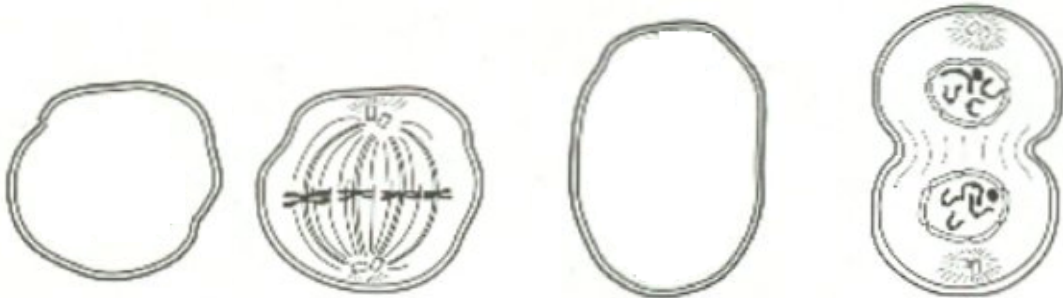


## SC10F Exam Review

### Sample Extended Answer Questions

#### I. Reproduction

1. The diagram below shows the 4 stages in the process of mitosis. For the first and third stage, complete the diagram by sketching the contents of the cell as they would appear during those stages.



2. Choose one of the following types of asexual reproduction. Describe the method you have chosen and give an example of an organism that uses that type of reproduction.

fission    budding    sporulation    vegetative propagation    regeneration

3. Describe ***ONE*** agricultural application of asexual reproduction. You may choose to describe one of the following applications or any other application of your choice: cloning, cuttings, grafting, bulbs.

4. Give one advantage and one disadvantage each for sexual reproduction and asexual reproduction.

	Advantage	Disadvantage
Asexual Reproduction		
Sexual Reproduction		

5. Explain **ONE** adaption of a plant or an animal species which improves its chances of successful reproduction. You may choose to describe one of the following adaptations or any other adaptation of your choice: appearance, behaviour, number of gametes or offspring, chemical cues.
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
6. “R” represents the gene that gives you the ability to roll your tongue while “r” represents the gene that disrupts your ability to roll your tongue. Jack and Jill had a son who can roll his tongue and a daughter who can’t roll her tongue. Give the genotypes and the phenotypes of all four family members. Show your work.

## II. Atoms and Elements

7. Fill in the following table so that it properly describes the characteristics of protons, electrons and neutrons.

Sub-atomic particle	Mass (small or large)	Position in the atom (nucleus or orbit)	Charge (+1, -1 or neutral)	Determines the type of atom (yes or no)
Proton				
Electron				
Neutron				

8. Draw the Bohr model for Magnesium. Label the nucleus and the electron shells. Be sure to include the correct number of protons, electrons, and neutrons in your diagram.

9. What is special about the atomic structure of all halogens?

10. Explain the difference between a chemical change and a physical change.

Chemical change	Physical change

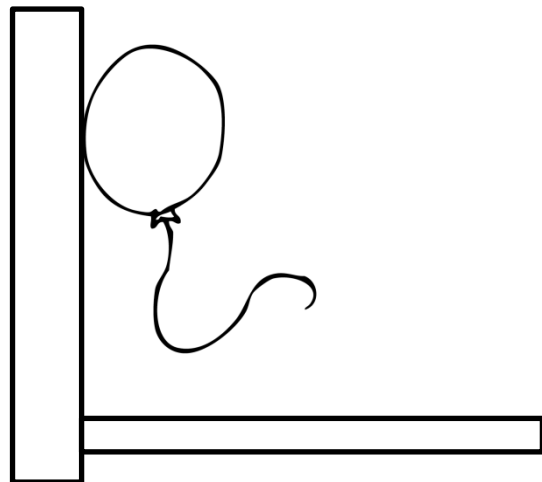
11. State two indicators of a chemical change.

Indicator 1	Indicator 2

### III. Electricity

12. What do atoms have to do with electricity? Talk about the subatomic particles to explain your answer.

13. Add “+” and “-“ signs in the drawing below to explain why a balloon that was rubbed on someone’s head is sticking to the neutral wall. Include an explanation for your answer in the space below.



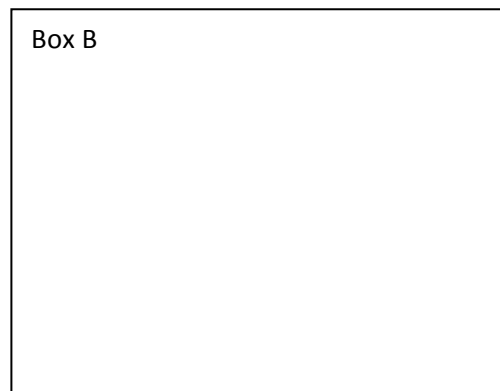
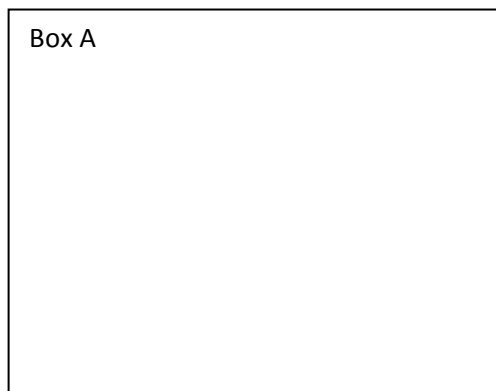
14. Explain how static electricity and electrical current are similar.

15. Choose one of the following sources of electrical energy. Describe it and give an example of an associated technology. Choose ONE: chemical, photo, thermo, electromagnetic or piezo.

16. Draw two different circuits, one in each of the boxes below.

Your drawings must meet the following criteria:

- Each circuit must have 2 bulbs and 1 battery.
- The circuit in Box A must have a higher current than the circuit in Box B. (Assume that all batteries and bulbs are identical.)



#### **IV. Astronomy**

17. The position and motion of visible celestial objects was very important for various cultures throughout history. Name one historical importance.

18. Compare the geocentric and heliocentric models of the universe by doing ONE of the following:

- write a short paragraph, OR
- draw a labeled diagram of each model