

SNC2D Exam Review Questions

CHEMISTRY

1. Fill in this chart using the periodic table:

Element	# Valence Electrons (no. of electrons in the outer shell)	Valence (number of electrons lost or gained to have a full outer shell)	Element	# Valence Electrons	Valence
potassium			sulphur		

2. Fill in this chart using the periodic table:

Compound	Number of different elements	Total number of atoms	Compound	Names of elements	Number of atoms of each element
$Al_2(SO_3)_3$			CH_3COOH		

3. Complete the table on ionic and covalent bonds making note of differences.

	Ionic Compounds (Ionic bonding)	Molecular Compounds (Covalent bonding)
Bonds (share or transfer of electrons)		
Naming		
Properties		
Dot Diagrams (show an example)		

4. Briefly summarize the properties of metals, non-metals and metalloids.

5. Write the names of the following:



6. Write the formulas for the following:

Diphosphorous pentoxide

Carbon monoxide

Iron (III) oxide

Potassium Nitrate

Ammonium phosphate

Lead (IV) Nitride

Magnesium sulfide

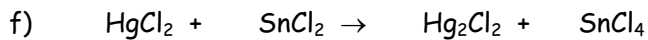
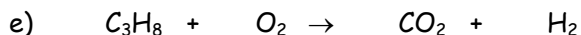
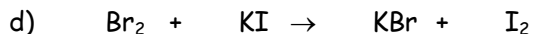
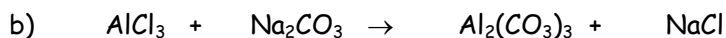
Manganese (IV) carbonate

7. What are the names of the 5 basic types of chemical reactions.

8 Write general equations of the 5 basic types of chemical reactions.

9. Identify the type of chemical reaction for each below, and then balance.

Type



10. What is another name for the rows in the periodic table? _____

What are the columns called? _____

11. Complete the table on Acid and Bases.

	Acid	Base
Ion produced		
pH range		
Properties		

12. What is the general neutralization equation for a reaction between an acid and a base?

13. Name 3 household/common substances that are basic.

14. Name 3 household/common substances that are acidic.

15. What is an indicator? What colour are phenolphthalein **and** litmus paper in an acid? In a base?

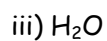
16. What is a chemical change? List the signs of a chemical change.

17. Complete the following table.

Element	Symbol	Atomic Mass No.	Atomic Number	Protons	Neutrons	Electrons
Fluorine						
Calcium ion						

18. Which elements in their natural states exist as a diatomic molecules?

19. Use electron dot diagrams to show the formation of the following compounds.



20. Which element has 9 protons? _____ What is its mass number? _____

21. Which element has 26 neutrons? _____

22. What name is given to the elements in group #1? _____ group #2? _____
group #17? _____

23. What is the charge on the ions of elements from group 17? _____ group 2? _____

24. Write a balanced chemical equation from the following word equations:

a. lithium + chlorine gas \rightarrow lithium chloride

b. barium sulphate + sodium nitrate \rightarrow barium nitrate + sodium sulphate

25. Chemical A has a pH of 3.2 and chemical B has a pH of 2.8. Which is more acidic and WHY?

26. Chemical A has a pH of 8.2, chemical B has a pH of 12.5, chemical C has a pH of 2.2, and chemical D has a pH of 6.8.

a) Which chemical is a weak acid? Strong base?

b) Which chemical is a strong acid? weak base?

OPTICS

1. Define each of the following methods of producing light (explain how each is produced) and give one example of each.

Bioluminescence, incandescence, fluorescence, phosphorescence, chemiluminescence, electric discharge, trioboluminescence, LED

2. Rank the following sources of light in order of highest energy to lowest energy.

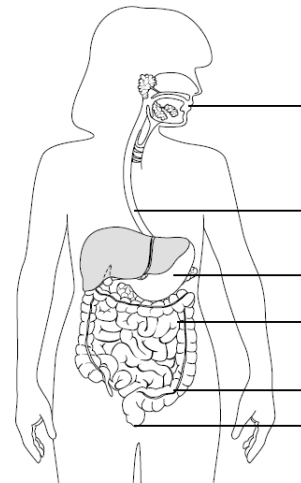
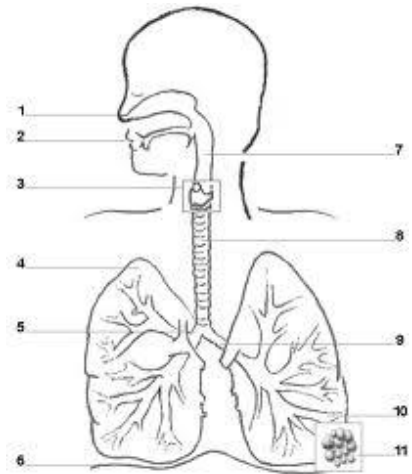
Radiowaves, Infrared waves, Gamma rays, X-rays, Microwaves, Ultraviolet Rays

3. As the wavelength increases, what happens to the frequency ?
3. What are the two types of colour theory? What are the primary colours for each?
4. When drawing light rays, how do you determine where the image is located?
5. Where is the focal point located relative to the centre of curvature of the mirror?
6. Give two examples of where concave mirrors are useful. What are two uses of convex mirrors?
7. How does a convex lens differ from a concave lens?
8. What are uses for convex and concave lens?
9. What conditions must be met for total internal reflection? Give an example of where this occurs.
10. Why does light bend when going from one material to another material?
11. What is refraction of light? Why does it occur?
12. What are the parts of the eye (structure and function)? Be able to label the eye and know the functions of the parts.
13. What type of lens would be used to correct far-sightedness? Near-sightedness?
14. Know how to locate the image for all of the mirrors and lenses.
15. The speed of light in quartz is 2.10×10^8 m/s. What is the index of refraction of quartz?
16. If the index of refraction of a material is 1.8, what is the speed at which light will travel through it?

BIOLOGY

1. What is an organelle?
2. List the structure and function of the cell membrane, cell wall, cytoplasm, nucleus, mitochondria, vacuoles, lysosomes, golgi body, cell wall, ribosomes, endoplasmic reticulum, chloroplast
3. Be able to label the parts from 2. on a cell drawing.
4. List 4 differences between plant and animal cells.
5. Why do cells divide instead of simply growing larger?
6. List each of the stages of mitosis in order and describe them.
7. What is a stem cell? Why are scientists studying stem cells?
8. What does the term tissue mean? List the form, function and location of the following tissues:
epithelial, connective, muscle, nervous, epidermal, ground, meristematic, vascular

9. What are the major events during interphase?
10. What are the functions of xylem and phloem?
11. List the following terms in order from biggest to smallest: cell , organelle, organ, molecule, tissue, organism, organ system
12. What are three substances linked to a higher risk of cancer?
13. What are 4 body systems? What is the main function of each system?
14. Review the labeling of the different organ systems. Label the diagrams. Which organ system is depicted in each?



15. What does it mean to respire?
16. Compare cell division of plants vs animal cells and how they differ. (differences are found mainly in the splitting of the cell)

CLIMATE CHANGE

1. What are some impacts of climate change? Identify the major changes that occur from 1^o - 6^o temperature changes according to the movie "Six Degrees Could Change the World".

2. What are some ways climate change can be stopped?