

SNC2D Exam Review Questions

BIOLOGY

- What is an organelle?
- List the structure and function of the cell membrane, cytoplasm, nucleus, mitochondria, vacuoles, lysosomes, cell wall, ribosomes
- List 4 differences between plant and animal cells.
- What is the structure of the cell membrane?
- Explain the process of diffusion. How does it differ from the process of osmosis?
- Why do cells divide instead of simply growing larger?
- List each of the stages of mitosis and describe them.
- How are mitosis and cancer related?
- What does the term tissue mean? List the form, function and location of the following tissues: epithelial, connective, muscle, nerve
- List the following terms in order from biggest to smallest: cell, organelle, organ, molecule, tissue, organism, organ system
- Describe the structure and functions of the following terms as they relate to the human digestive system: Teeth, esophagus, stomach, small and large intestine
- What are 4 body systems? What is the main function of each system?
- Describe the interaction between three body systems listed in the question above.
- Distinguish between arteries, veins, alveoli, and capillaries.
- You are an oxygen molecule. Describe your journey from the time you enter the nose of an individual until you enter the blood stream. You may include a labeled diagram to support your answer.

CHEMISTRY

- Fill in this chart using the periodic table:

Element	# Valence Electrons	Valence	Element	# Valence Electrons	Valence
potassium			sulphur		

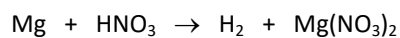
- Fill in this chart using the periodic table:

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 ₃ COOH		

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

	Ionic	Covalent
Bonds		
Naming		
Properties		
Dot Diagrams		

- What type of reaction occurs between sodium and chlorine?
- Use the chemical equation below to explain what mass of hydrogen would be produced if 5.0 g of magnesium were mixed with 10.0 g of nitric acid and 7.5 g of magnesium nitrate is formed.



- Write the names of the following:



- Write the formulas for the following:

Diphosphorous pentoxide

Carbon monoxide

Iron (III) oxide

Potassium Nitrate

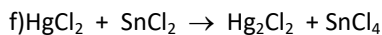
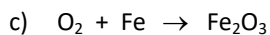
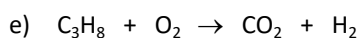
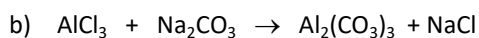
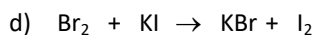
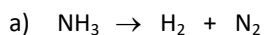
Ammonium phosphate

Lead (IV) Nitride

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

9. a. Write general equations of the 5 basic types of chemical reactions.
 b. For each type of chemical reaction, write the general reaction. Provide an example.

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



11. Complete the table on Acid and Bases.

	Acid	Base
Ion produced		
pH range		
properties		

12. What is the general neutralization equation for an acid and base?
 13. Name 5 household substances that are basic.
 14. Name 5 household substances that are acidic.
 15. Explain the pH scale.

OPTICS

1. Define and provide an example of each of the following methods of producing light:

Bioluminescence incandescence fluorescence phosphorescence chemiluminescence
 electric discharge

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. When drawing light rays, how do you determine where the image is located? Draw an example to explain your answer.

4. Make a sketch of a stick-figure, arrow, or candle to show the difference between an image that is virtual and an image that is real. Use a concave mirror in your example.

5. Where is the focal point located relative to the centre of curvature of the mirror?

6. What are two characteristics of an image seen from a plane mirror?

7. Name 3 places where concave mirrors are useful. Give three places where convex mirrors are useful.

8. Draw ray diagrams for both a concave and convex mirrors when the image is outside of the focal point and between the focal point and the mirror.

9. What conditions must be met for total internal reflection?

10. Why does light bend when going from one material to another material?

11. What is refraction of light? What are the laws of reflection?

12. Light travels from a liquid ($n=1.28$) to a glass at an angle of incidence of 25 degrees. If the angle of refraction in the glass is 21° , what is the index of refraction of the glass?

13. Light travels from liquid ($n=1.25$) to a crystal ($n=1.54$) at an angle of incidence of 45 degrees. Determine the angle of refraction of the light in the ruby.

14. Light travels from air to a liquid at an angle of incidence of 45 degrees. If the angle of refraction in the glass is 41° , what is the index of refraction of the liquid?