

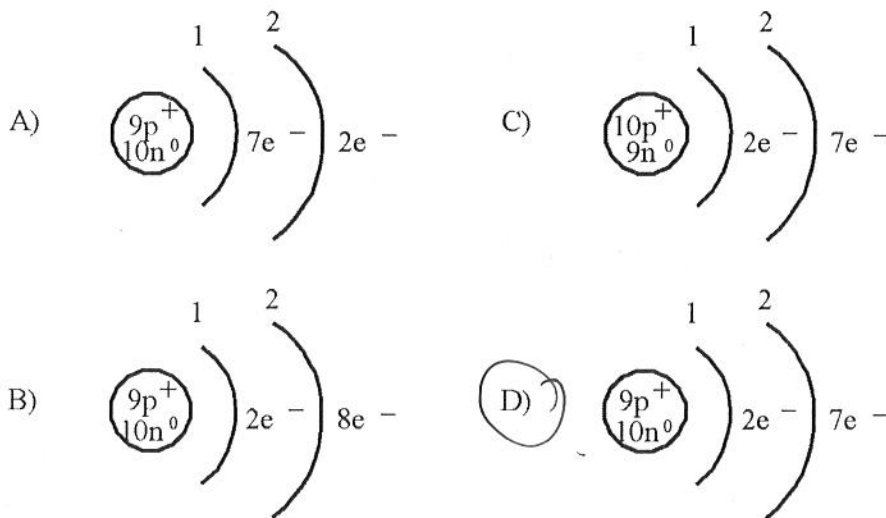
Name: _____

Key

Ignore # 9

Grade 10 ST Atoms, Elements and Solutions Review

1) Which of the following diagrams best represents the Rutherford-Bohr atomic model of the fluorine atom?



2) How many valence electrons do each of the alkali metals have?

- A) 1
- B) 2
- C) 7
- D) 8

4) You dissolve 0.38 g of sodium fluoride, NaF, in 350.0 ml of distilled water. What will be the concentration in grams per litre (g/l) of the solution?

A) 133 g/l

B) 38 g/l

C) 0.11 g/l

D) 1.1 g/l

$$\frac{0.38\text{g}}{350\text{mL}} = \frac{0.38\text{g}}{0.35\text{L}} = 1.085\text{g/L}$$

5) You prepared an aqueous solution of sodium hydroxide, NaOH, that has a concentration of 15 g/L. To do this, you used 60 g of NaOH.

What is the volume of the solution you prepared?

A) 0.25 L

B) 0.90 L

C) 1.5 L

D) 4.0 L

$$\frac{15\text{g}}{1\text{L}} = \frac{60\text{g}}{x\text{L}}$$

$$x = 4\text{L}$$



$$V = \frac{m}{c}$$

6) Complete the following sentence by choosing the correct response.

Fluorine, chlorine, bromine and iodine belong to the halogen family; they are all used for

A) lighting.

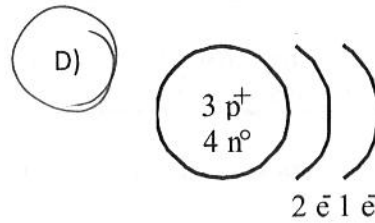
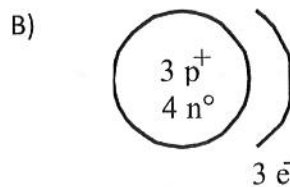
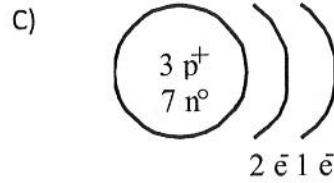
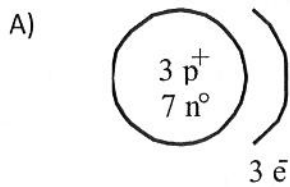
B) disinfecting.

C) communication.

D) heating.

7) The mass number of lithium (Li) is 7 and its atomic number is 3.

Which of the following diagrams represents the simplified atomic model of a lithium atom (Rutherford-Bohr)



8) To prepare 100 mL of a salt solution, you used 2 g of sodium chloride NaCl.

What is the concentration of the solution in g/L?

A) 0.02 g/L

C) 2 g/L

B) 0.2 g/L

D) 20 g/L

$$\frac{2\text{g}}{0.1\text{L}} = 20\text{g/L}$$

9) The hydrogen peroxide used to disinfect cuts must have a concentration of roughly 6%. Using a 30% solution of hydrogen peroxide, you are to prepare 300 mL of a 6% solution of hydrogen peroxide.

What volume of the 30% solution of hydrogen peroxide will you use?

A) 50 mL

C) 240 mL

B) 60 mL

D) 250 mL

Ignore this question.

↳ Dilution Question.

10) Four elements from the periodic table are described below.

Element 1	This element from Period 2 has two more electrons than helium. <i>Be</i>
Element 2	This soft metal from Period 3 has one valence electron and reacts vigorously with water. <i>Na</i>
Element 3	This element from Period 4 is found in bones and teeth. <i>Ca</i>
Element 4	This element from Period 3 has some of the properties of metals and nonmetals. <i>Si</i>

Which of these elements belong to the same group or chemical family?

A) 1 and 2

C) 2 and 4

B) 1 and 3

D) 3 and 4

11) In order to prepare a solution with a concentration of 24 g/L, you use 6 g of solute.

What will be the volume of your solution?

A) 0.25 L

C) 144 L

B) 4 L

D) 250 L

$$\frac{24 \text{ g}}{1 \text{ L}} = \frac{6 \text{ g}}{x}$$

$$C = \frac{m}{V}$$

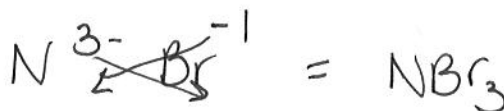
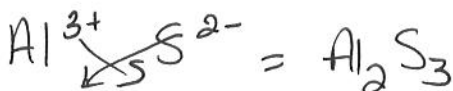
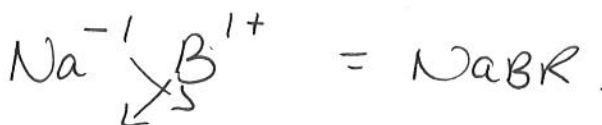
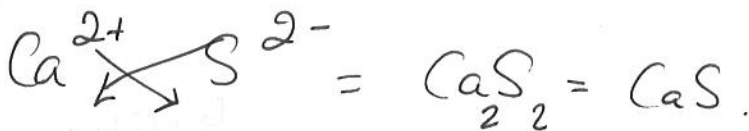


12) These elements combine to form compounds : Na, Ca, S, N, Al and Br. Which of the chemical formulas below respect the octet rule?

A) \checkmark NaBr, \times Ca₂S, Na₂S

B) N₂S₃, SBr, AlS

C) \checkmark NaBr, \checkmark Al₂S₃, \checkmark NBr₃



D) AlS , Na_2N , CaS

13) Which of the following substances contains ionic bonds?

A) ~~CH_4~~
B) MgO ✓

C) ~~O_2~~
D) ~~PCl_3~~

14) In which one of the following molecules do the atoms form ionic bonds?

A) ~~O_2~~
B) ~~CH_4~~

C) ~~N_2O_3~~
D) CaBr_2

15) You are asked to prepare 250 mL of a salt solution with a concentration of 10 g/L.

How much salt will you need to prepare this solution?

A) 0.04 g
B) 2.50 g

C) 25.00 g
D) 40.00 g

$$\frac{10 \text{ g}}{\text{L}} = \frac{x}{0.25 \text{ L}}$$