Test: Practice Questions - Online RA Session #02 - Chemistry

Points: 30 points

Name: _____ **Score:** _____

Date: _____

Signature: _____

Select multiple choice answers with a cross or tick:

○ Only select one answer

☐ Can select multiple answers

These questions should be answered in exam conditions.

Materials
For these practice questions you must have:

- a pen or pencil

- plain paper

- a scientific calculator

- the periodic table.

Instructions

- To provide your answer select, write, or choose the correct option. Each question will have a different answering method and you must provide your answer accordingly.

- Complete all rough work on the plain paper listed above.

Information

- The maximum mark for these questions is 30.

- The marks for questions are shown below the question number.

- You are expected to use a calculator where appropriate.

- You must answer all questions.

Question 1 of 14

Raising Attainment 1 pt

In the Periodic Table, how are elements arranged?

- **A)** In order of reactivity.
- **B)** In order of mass.
- **C)** In order of atomic number.
- **D)** In order of atomic radius.

Question 2 of 14

Raising Attainment 1 pt

Elements in the same group have the same number of what?

- **A)** Protons
- **B)** Neutrons
- **C)** Occupied electron shells
- **D)** Outer electrons

Question 3 of 14

Raising Attainment 1 pt

Elements in the same period have the same number of what?

- **A)** Outer electrons
- **B)** Neutrons
- **C)** Occupied electron shells
- **D)** Reactions

Question 4 of 14

Raising Attainment 1 pt

Ions with a 2+ charge are formed by elements in which group?

- **A)** Group 6
- **B)** Group 1
- **C)** Group 2
- **D)** Group 7

Question 5 of 14

Raising Attainment 1 pt

Which chemical element has the symbol Pd?

- **A)** Platinum
- **B)** Palladium
- **C)** Lithium
- **D)** Zirconium
- **E)** Bismuth
- **F)** Nobelium
- **G)** Lead
- **H)** Argon

Question 6 of 14

Raising Attainment 1 pt

An element with electronic configuration 2,6 would be where on the Periodic Table?

- **A)** Period 8 and Group 2
- **B)** Period 2 and Group 6
- **C)** Period 6 and Group 2
- **D)** Period 3 and Group 1
- **E)** Period 1 and Group 8

Question 7 of 14

Raising Attainment 1 pt

What is the electronic structure of Carbon?

- **A)** 4,2
- **B)** 6
- **C)** 2,8,8
- **D)** 2,2
- **E)** 2,2,2
- **F)** 2,4
- **G)** 8,2,8
- **H)** 2,8,1

Question 8 of 14

Raising Attainment 1 pt

Which periodic group is Magnesium a member of?

- **A)** Group 1
- **B)** Group 2
- **C)** Group 3
- **D)** Group 4

Question 9 of 14

Raising Attainment 2 pts

Select all of the following elements that are a member of the halogens.

- [ ] **A)** Carbon
- [ ] **B)** Potassium
- [ ] **C)** Xenon
- [ ] **D)** Hydrogen
- [ ] **E)** Bromine
- [ ] **F)** Aluminium
- [ ] **G)** Sulfur
- [ ] **H)** Iodine

Question 10 of 14

Raising Attainment 3 pts

Balance the following equation:

$\_Al + \_H_2SO_4 \rightarrow \_Al_2(SO_4)_3 + \_H_2$

Copy the equation and replace the underscores (_) to balance.

Question 11 of 14

Raising Attainment 5 pts

Nitrogen and hydrogen react together in the following way:

$N_2 + 3H_2 \rightarrow 2NH_3$

The bond energies for some particles are shown below:

N≡N: 941 kJ/mol
H-H: 436 kJ/mol
N-H: 391 kJ/mol

Calculate the overall energy change of the reaction.

Question 12 of 14

Raising Attainment 5 pts

The waste product SO2 can be used to produce sulfuric acid.
The equation for the reaction is:

$2SO_2 + 2H_2O + O_2 \rightarrow 2H_2SO_4$

The bond energies involved are shown below:

S=O: 522 kJ/mol
O=O: 494 kJ/mol
O-H: 459 kJ/mol
S-O: 265 kJ/mol

Calculate the overall energy change.

Question 13 of 14

Raising Attainment 5 pts

Using the following bond energies, calculate the energy change for the reaction below.

$2H_2 + O_2 \rightarrow 2H_2O$

H-H: 436 kJ/mol
O=O: 498 kJ/mol
O-H: 463 kJ/mol

The previous reaction had an overall energy change of -482 kJ/mol. What type of reaction was it?

- **A)** Exothermic
- **B)** Endothermic

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