Name: Student ID:

1. A mixture of S atoms () and O2 molecules () in a closed container is represented in the diagram:

Which diagram represents the contents of the container after the mixture reacts as completely as possible according to the equation: 2S + 3O2 → 2SO3

1. (b) (c) (d) (e)

2. A mixture of 2 moles of H2 and 2 moles of O2 reacts according to the equation: 2H2 + O2 → 2H2O

What is the limiting reactant, and how many moles of the excess reactant remain after the reaction is complete?

Limiting reactant Excess reactant remaining

(a) O2 1 mol O2

(b) O2 1 mol H2

(c) H2 1 mol O2

(d) H2 1 mol H2

(e) No reaction occurs since the equation does not balance with 2 mol H2 and 2 mol O2

3. The reaction of element X () with element Y () is represented in the diagram:

Which equation best describes this reaction?

(a) 3X + 8Y → X3Y8

(b) X3 + Y8 → 3XY2 + 2Y

(c) X + 2Y → XY2

(d) 3X + 8Y → 3XY2 + 2Y

(e) X3 + Y8 → 3XY2 + Y2

4. How did this recitation compare to the others?