NAME:_____   DATE:_____

MULTIPLE CHOICE: Select the best answer for the following and place the corresponding CAPITAL letter in the space provided [7 kno]

1. Which type of substance is homogeneous, has only one phase and is composed of only one type of atom?
   (a) compound   (b) mixture   (c) solution   (d) element

2. In all chemical reactions in the closed system the mass of the
   (a) products is greater than the mass of reactants
   (b) reactants is greater than the mass of products
   (c) reactants always equals the mass of products
   (d) products may be more or less than the mass of reactants

3. 1.234 g of X reacts with 4.567 g of Y. How much X reacts with 1.000 g of Y?
   (a) 0.270 g   (b) 3.701 g   (c) 5.636 g   (d) 1.234 g

4. During an experiment, some of the particles emitted by a radioactive substance were attracted towards a negatively charged plate. These particles were probably
   (a) gamma rays   (b) electrons   (c) helium nuclei   (d) neutrons

5. Rutherford performed an experiment which provided evidence that atomic nuclei are
   (a) positively charged and close together   (b) negatively charged and close together
   (c) positively charged and far apart   (d) negatively charged and far apart

6. The number of neutrons in the nucleus of an atom of the element with atomic number 79 and mass number 196 is
   (a) 79   (b) 117   (c) 196   (d) 275

7. The atomic number of an element is 12 and the mass number is 25. One neutral atom of the element consists of
   (a) 13 protons, 12 neutrons, 13 electrons   (b) 12 protons, 13 neutrons, 12 electrons
   (c) 13 protons, 13 neutrons, 13 electrons   (d) 12 protons, 13 neutrons, 13 electrons

1	2	3	4	5	6	7

1. Complete The following table: [3 marks: K]

Name of element/ion	Symbol	Number of electrons	Atomic number	Number of protons	Number of neutrons	Mass number	Group	Period
		16	14			30		

For full marks –show all work and include correct number of significant digits

2.   An element has the four following isotopes with specified atomic masses and abundance. Calculate the average atomic mass. Show all work.   5 Marks: I]

ISOTOPE	ABUNDANCE %
Strontium-88	82.580
Strontium-87	7.0000
Strontium-84	0.5600
Strontium-86	

3. Rank each of the following particles in order of 1st ionization energy – from the largest to the smallest. Explain fully how you arrived at your answer. Stating a trend in a periodic table will not be sufficient to get full marks. [3 Marks: I]

Rb^+, Rb, Na, Al

4. Determine the mass of iodine-131 left after 2 weeks. The half-life of iodine-131 is 8.0 days, and the initial mass was 1.00 kg. [3 Marks: I]