Chemistry 115 Name key

Dr. Cary Willard

Quiz 2a (20 points) February 9, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) After you have worked out at the gym on a stationary bike for 45.0 minutes, the distance gauge indicates that you have traveled 15.2 miles. What was your rate in km/hr? (hint: 1 mile = 5280 feet)

$$?\frac{km}{hr}=\frac{15.2 mi}{45.0 min}×\frac{5280 ft}{1 mi}×\frac{12 in}{1 ft}×\frac{2.54 cm}{1 in}×\frac{1 m}{100 cm}×\frac{1 km}{1000 m}×\frac{60 min}{1 hr}=\frac{32.6 km}{hr}$$

1. (5 points) On a rainy day in San Diego the temperature outside is 17oC. Calculate this temperature in degrees Fahrenheit.

$$℉=\left(17℃×\frac{180 ℉}{100℃}\right)+32℉=31℉+32℉=63℉$$

1. (3 points) Give an example of each of the following:

|  |  |
| --- | --- |
| Nonmetallic element | S |
| Halogen | Br |
| Diatomic element | H2 |

1. (4 points) Write the ion that would be formed from each of the following elements and give its correct name.

|  |  |  |
| --- | --- | --- |
| Element | Ion formed | Name |
| Ca | Ca+2 | Calcium ion |
| N | N-3 | Nitride ion |

1. (3 points) Explain why the filling of a McDonald’s hot apple pie will burn your mouth when the pie is cool enough to hold in your hands. Use chemical reasoning.

The filling contains water with a very high specific heat. In order for the filling to cool to the temperature of your mouth it must transfer a lot of heat to you. Thus you get burned!!

Chemistry 115 Name key

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Quiz 2b (20 points) February 9, 2010

Must show all work to receive credit. Use proper significant figures.

1. (5 points) After you have worked out at the gym on a stationary bike for 45.0 minutes, the distance gauge indicates that you have traveled 17.2 miles. What was your rate in km/hr? (hint: 1 mile = 5280 feet)

$$?\frac{km}{hr}=\frac{17.2 mi}{45.0 min}×\frac{5280 ft}{1 mi}×\frac{12 in}{1 ft}×\frac{2.54 cm}{1 in}×\frac{1 m}{100 cm}×\frac{1 km}{1000 m}×\frac{60 min}{1 hr}=\frac{36.9 km}{hr}$$

1. (5 points) On a rainy day in San Diego the temperature outside is 15oC. Calculate this temperature in degrees Fahrenheit.

$$℉=\left(15℃×\frac{180 ℉}{100℃}\right)+32℉=27℉+32℉=59℉$$

1. (3 points) Give an example of each of the following:

|  |  |
| --- | --- |
| Metallic element | Na |
| Alkaline earth element | Ca |
| Diatomic element | H2 |

1. (4 points) Write the ion that would be formed from each of the following elements and give its correct name.

|  |  |  |
| --- | --- | --- |
| Element | Ion formed | Name |
| K | K+1 | Potassium ion |
| S | S-2 | Sulfide ion |

1. (3 points) Explain why the filling of a McDonald’s hot apple pie will burn your mouth when the pie is cool enough to hold in your hands. Use chemical reasoning.

The filling contains water with a very high specific heat. In order for the filling to cool to the temperature of your mouth it must transfer a lot of heat to you. Thus you get burned!!