Problem Set – DVORSKY

Chemistry SL/HL

1.

Which decreases as a liquid is heated to become a gas?

A. Attractive forces between particles

B. Motion of the particles

C. Size of the particles

D. Space between the particles

2.

Sodium reacts with water as shown below.

$$\_\_ Na + \_\_ H_2O \rightarrow \_\_ NaOH + \_\_ H_2$$

What is the total of **all** the coefficients when the equation is balanced using the smallest possible whole numbers?

A. 3

B. 4

C. 6

D. 7

3.

What is the sum of all coefficients when the following equation is balanced using the smallest possible whole numbers?

$$\_\_ C_2H_2 + \_\_ O_2 \rightarrow \_\_ CO_2 + \_\_ H_2O$$

A. 5

B. 7

C. 11

D. 13

4. A closed flask contains a pure substance, a brown liquid that is at its boiling point. Explain what you are likely to observe in the flask and distinguish between the inner-particle distances and the average speeds of the particles in the two states present.

5. During very cold weather, snow often gradually disappears without melting. Explain how this is possible?

6. Which of the following occurs at the melting point when solid sulfur is converted to its liquid form?

I movement of the particles increases

II distance between the particles increases

A I only

B II only

C Both I and II

D Neither I nor II

7. The warmest temperature recorded on Earth September 21 2016 was +43.8 ^{o}C in In-Salah Algeria. The coldest temperature recorded was -70.8 ^{o}C in Concordia Antarctica. Convert both values to Kelvin.

8. You are given a liquid substance at 80 ^{o}C and told that it has a melting point of 35 ^{o}C. You are asked to take its temperature at regular time intervals while it cools to room temperature (25 ^{o}C). Sketch a cooling curve that you would expect to obtain.