

Fire Unit – Practice Test

- Which of the following does NOT always happen during a fire?  
(A) Heat is released    (B) Light is released    (C) Smoke forms    (D) New products are formed
- For an exothermic process,  
(A)  $\Delta T$  is negative  
(B) Energy is transferred from the solution to the environment  
(C) The solution feels cold  
(D) Energy is transferred from the environment to the solution
- When two or more objects in contact with one another reach the same temperature, it is called (A) endothermic    (B) exothermic    (C) internal energy    (D) thermal equilibrium
- When water boils in a pot on the stove,  
(A) heat is being transferred into the water    (B) heat is being transferred out of the water  
(C) the internal energy decreases    (D) the internal energy stays the same
- An experiment to measure the amount of heat transferred is called  
(A) titration    (B) calorimetry    (C) exothermic    (D) thermal equilibrium
- You burn a 4 g peanut to warm 300 mL of water. The temperature of the water increases by 45°C. How many calories does the peanut have?  
(A) 26.7 calories    (B) 3375 calories    (C) 13500 calories    (D) 54000 calories
- When you balance the combustion reaction for glucose, what is the coefficient on the oxygen gas?  $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O$   
(A) 12    (B) 6    (C) 3    (D) 2
- When you burn sulfur, which of the following will be the product?  
(A)  $SO_2$     (B)  $CO_2$     (C)  $H_2O$     (D)  $O_2$
- Which requires more energy?  
(A) Heating 100 g of water from 10°C to 30°C    (B) Heating 50 g of water from 10°C to 20°C  
(C) Heating 10 g of water from 20°C to 60°C    (D) Heating 400 g of water from 20°C to 30°C
- Which of the following is NOT required for combustion?  
(A) explosion    (B) spark    (C) oxygen    (D) chemical chain reaction
- Which of the following is NOT likely to extinguish a fire?  
(A) Covering the fire with sand    (B) Putting water on the fire  
(C) Blowing oxygen gas on the fire    (D) Blowing carbon dioxide gas on the fire
- Which of the following will NOT combust?  
(A)  $CH_4$     (B)  $CH_3OH$     (C) Mg    (D)  $CaCl_2$

13. Which of the following will combust?  
 (A) Water (B) Molecular covalent compounds  
 (C) Ionic salts (D) Carbon dioxide
14. You have water at 25°C. You dissolve ammonium acetate,  $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$ , in the water and find that the temperature decreases to 15°C.
- Is  $\Delta T$  positive or negative?
  - Is heat transferring from the solution to the environment or from the environment to the solution?
  - Is the process exothermic or endothermic?
15. You are camping and need to build a fire that will last all night. You have the following items with you. Which two things would you use? Explain your choices.
- bottle of water ( $\text{H}_2\text{O}$ )    aluminum can (Al)    packets of salt (NaCl)
- packets of sugar ( $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ )    candle wax ( $\text{C}_{25}\text{H}_{52}$ )    match

#### ANSWERS

- C
- B
- D
- A
- B
- C
- B
- A
- D
- C
- C
- D
- B
- a.  $\Delta T$  is negative  
 b. from the environment to the solution    c. endothermic
- Wax and a match. The air contains oxygen. Wax is the best fuel because it has the most carbon atoms. The match is for the spark to start the fire.