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**Chemistry and Physics of Fire Quiz**

Distinguish among the three methods of heat transfer. Write **CD** before examples of conduction, **CV** before examples of convection, and **R** before examples of radiation.

1. \_\_\_\_\_ A basement fire heats pipes enough to ignite the wood inside walls several rooms away.
2. \_\_\_\_\_ Fire spreads from the first to the third floor by thermal columns.
3. \_\_\_\_\_ The heat from a burning building ignites a second building 20 feet away.
4. \_\_\_\_\_ A firefighter testing a hose on the driveway receives sunburn.
5. \_\_\_\_\_ The ventilation team opens the roof of a burning building and smoke and flames come out of the opening.

Multiple Choice

1. \_\_\_\_\_ The amount of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.
   1. Calorie
   2. Mechanical equivalent of heat
   3. British Thermal Unit
   4. Joule
2. \_\_\_\_\_ The ratio of the mass (weight) of a given volume of liquid to the mass (weight) of an equal volume of water.
   1. Vapor pressure
   2. Specific gravity
   3. Physical property
   4. Vapor density
3. List the four elements of the Fire Tetrahedron:
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

True or False

1. \_\_\_\_\_ The shape and size of a fuel affects its ignitability.
2. \_\_\_\_\_ When a solid fuel is in a vertical position, fire spread is more rapid than when it is in a horizontal position.
3. \_\_\_\_\_ Oxygen is present in air at 26%.
4. \_\_\_\_\_ Fuel is defined as anything that will burn.
5. \_\_\_\_\_ Most common fuels contain carbon and nitrogen.
6. \_\_\_\_\_ Increasing the amount of oxidizer decreases the intensity of the fire.
7. \_\_\_\_\_ Boiling point is when vapor pressure equals atmospheric pressure.
8. \_\_\_\_\_Which of the following products of combustion would not be present in a smoldering fire?
   * 1. fire gases
     2. heat
     3. smoke
     4. flame
9. \_\_\_\_\_What is the most common of the hazardous gases contained in smoke?
   * 1. Carbon monoxide
     2. Carbon dioxide
     3. Chlorine
     4. Hydrogen cyanide
10. Explain what Pyrolysis is:

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1. List four signs of possible backdraft:
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Complete combustion produces what two elements?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_