

Worksheet #11 | 23 April 2008

Name:

Chapters 24, 25, 26, 27: Fire Protection and Electrical Systems

1. The three elements of the fire “triangle of needs” are:
 - (a) fuel, high temperature, and oxygen
 - (b) fuel, ignition, and combustion
 - (c) detection, signaling, and response
 - (d) carbon, oxygen, and smoke

2. In terms of building design, smoke differs from fire mainly because:
 - (a) fire is much more hazardous to occupants than smoke
 - (b) smoke always moves upward, but fire moves in all directions
 - (c) barriers to fire spread are not good barriers to smoke spread
 - (d) smoke is much more difficult to detect than fire

3. When a conventional automatic sprinkler system operates during a fire:
 - (a) all the sprinkler heads in the building go off
 - (b) all the sprinkler heads on the floor of the fire go off
 - (c) only the sprinkler heads in the fire zone go off
 - (d) only a very few sprinkler heads go off

4. Match each of the four main types of sprinkler systems noted (column 1) with its typical application (column 2):

(a) wet-pipe	(1) buildings subject to freezing
(b) deluge	(2) areas where water damage is a concern
(c) preaction	(3) everyday building occupancies
(d) dry-pipe	(4) areas with very high fire hazards

5. The three basic parts of any fire alarm system are:
 - (a) manual, automatic, and hybrid devices
 - (b) fire, smoke, and all-clear signals
 - (c) signal initiation, signal processing, and alarm indication
 - (d) people, equipment, and interfaces

6. An ionization type fire detector will be used to sense:
 - (a) products of combustion generated in the early stages of a fire
 - (b) the radiation developed as a fire produces flames
 - (c) the temperature rise experienced as a result of a fire
 - (d) the status of HVAC equipment operation

7. Current is the electrical term used to describe:
 - (a) the potential for electron flow established across a circuit
 - (b) the magnitude of the flow of electrons through a circuit
 - (c) the conductor through which electrons flow
 - (d) the frequency of oscillation of AC power

8. Which of the following electric circuit arrangements is most common in buildings:
 - (a) series circuit
 - (b) parallel circuit
 - (c) open circuit
 - (d) short circuit

9. Which of the following statements best reflects the use of direct current in buildings:
- (a) DC is the system most commonly used
 - (b) DC is found mainly in conjunction with battery and PV systems
 - (c) DC is used primarily for office equipment
 - (d) DC is prohibited by the *National Electrical Code*
10. Which means of service delivery is typically more expensive to install:
- (a) overhead service
 - (b) underground service
 - (c) neither, overhead and underground service generally cost the same
11. The purpose of an electrical transformer is to:
- (a) convert utility-provided DC power to AC power for building use
 - (b) convert high-frequency utility power to 60 Hz building power
 - (c) change the voltage of electric distribution
 - (d) remove noise and disturbances from utility-provided power
12. Fuses and circuit breakers:
- (a) have similar uses but different construction and operation
 - (b) have very different uses and constructions
 - (c) are two terms for the exact same device
13. A panelboard is typically installed:
- (a) at the service entrance to a building
 - (b) next to the primary building transformer
 - (c) adjacent to all switchboards
 - (d) between electrical feeders and branches
14. Computer grade power refers to:
- (a) high-frequency power needed to operate most laptop computers
 - (b) power that is generally free of power quality problems
 - (c) power that is available at all times
 - (d) low-voltage power used for data transmissions
15. A conductor is best described as:
- (a) a conduit containing an aluminum or copper wire
 - (b) a material that will generate electricity when exposed to solar radiation
 - (c) an aluminum or copper wire or cable
 - (d) a container of any sort for wires or cables
16. "Romex" is a type of:
- (a) anti-corrosion coating used on exterior wiring systems
 - (b) large-capacity busbar (typically used in industry)
 - (c) light-weight steel conduit (used in commercial/institutional buildings)
 - (d) nonmetallic sheathed cable (typically used in small buildings)
17. A cable tray is best described as:
- (a) a closed protective element, similar to conduit
 - (b) an open support system for cables
 - (c) basically the same as a busbar
 - (d) a type of conduit made to be encased in concrete floor slabs
18. Which of the following system voltages is most likely to be used in a single-family residence:
- (a) 120 volt, 1-phase, 2-wire
 - (b) 120/240 volt, 1-phase, 3-wire
 - (c) 277/480 volt, 3-phase, 4-wire
 - (d) 2400/4160 volt, 3-phase, 4-wire