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Continuing Education Course #476
An Overview of Electrical System Components
for Mission Critical Facilities: Part 1

1. True or False, it is recommended that whenever possible, the second feeder be fed from a separate substation for the utility service for redundancy purpose for critical facilities.
- a. True
- b. False

2. True or False, It is preferred that overhead exposure (pole-mounted conductors) be avoided to reduce disruption of service commonly caused by animals, weather, or automobiles for the utility service.
- a. True
- b. False

3. True or False, Both the transformers and all switches should be located inside the facility in a same fire-rated areas or vaults to avoid the potential for damage or vandalism.
- a. True
- b. False

4. True or False, The secondary voltage from the service transformers should feed separate main switchboards located in separate fire-rated rooms.
- a. True
- b. False

5. True or False, The generator voltage should be the different as the service transformer secondary for the facility.
- a. True
- b. False

6. True or False, In order to exercise the generator plant and/or to test an individual generator after repair or maintenance, a test switchboard should be included. This switchboard would be connected to a load bank and enable testing of the generators and UPS systems under simulated load.
- a. True
- b. False

7. True or False, There are two ways to achieve the transfer of power between normal (utility) and standby (generator) sources. When the generator is isolated from the utility when supporting the critical loads of facility, either an automatic transfer switch or paralleling switchgear with motorized circuit breakers can be used.
- a. True
- b. False

8. True or False, Transient Voltage Surge Suppressors (TVSS) or Surge Protection Devices (SPD), when installed at critical panelboards and main switchgear, can provide additional protection from internal and external electrical surges.
- a. True
- b. False

9. True or False, Each stroke may contain a peak current of 100,000 amperes and voltage up to 100,000,000 volts over a period of 30 to 50 microseconds.

- a. True
- b. False

10. The result of a lightning strike can be which of the following.

- a. Structural damage, ignition combustibles, electrical system damage
- b. mouse run away
- c. bird fly away
- d. plumbing damage

11. What is lightning?

- a. Fancy lights
- b. Decorative lights
- c. Lightning is an electrical discharge originating in the atmosphere that contains enormous amounts of energy.
- d. Disco Lights

12. What are the exterior system contains for lightning protection?

- a. Air terminals, ground terminations and down conductors
- b. electrical wire
- c. transformer
- d. wall

13. What are the interior system contains for lightning protection?

- a. light bulb
- b. bonding conductors, loop conductors, other devices to achieve equalization of ground potential within the structure
- c. wall
- d. Ceiling fan

14. Where does TVSS should install?

- a. Primary side of building transformer
- b. Secondary side of building transformer

15. True or False, When necessary, the distribution panelboard will contain a kirk key arrangement or manual transfer switch to avoid simultaneous energization from different sources of the power.

- a. True
- b. False