edcetera engineering

Final Exam
National Electric Code

1. What area of jurisdiction most aptly describes that of the National Electrical Code (NEC)?
- a. Generation Stations
- b. End User Buildings
- c. Transmission Lines
- d. Transmission Substations

2. Which type of unit conversion ensures a part is interchangeable?
- a. English to Metric
- b. Hard Conversion
- c. Metric to English
- d. Soft Conversion

3. Which chapter(s) is(are) stand-alone and not modified by the other chapter(s)?
- a. Chapters 1-4
- b. Chapter 5-6
- c. Chapter 7
- d. Chapter 8

4. What type of circuit conductor are from the final overcurrent device and the outlet?
- a. Branch
- b. Feeder
- c. Main Feeder
- d. Subfeeder

5. What is the Code name for what a layman often calls the "safety ground" or "green ground"?
- a. Equipment Grounding Conductor
- b. Grounding Electrode Conductor
- c. Ground Electrode
- d. Neutral

6. A large complex contains four feeders to power various loads. You are tasked with properly sizing the transformer to power these loads. Assume to loads and demand factors below, what most nearly is the total load for which the transformer must be sized?

Feeder #1: 20 kVA
Feeder #2: 15 kVA
Feeder #3: 20 kVA
Feeder #4: 75 kVA

Demand Factor 1: 60% for first 20 kVA

Demand Factor 2: 50% for 20,001 VA to 100 kVA
Demand Factor 3: 35% for total loads > 100 kVA

- a. 62 kVA
- b. 72 kVA
- c. 75 kVA
- d. 130 kVA

7. An electrician is trying to figure out how many circular mils an piece of transmission cable is and asks for your help. The conductor has a diameter of 0.3 inches. To how many circular mils does this correspond?

- a. 3,000 cmils
- b. 9,000 cmils
- c. 18,000 cmils
- d. 90,000 cmils

8. A wire with black insulation has three grey stripes on it. What type of wire is this meant to be?

- a. Ground
- b. Hot
- c. Neutral
- d. Phase C

9. What common household type of device senses an imbalance through a current transformer which, if imbalanced, trips prior to the associated branch circuit breaker?

- a. Arc Fault Interrupter
- b. Forward Sensing Relay
- c. Ground Fault Circuit Interrupter
- d. Instantaneous Trip Relay

10. Which of the following is NOT a standard size circuit breaker?

- a. 15 A
- b. 20 A
- c. 25 A
- d. 50 A

11. Cord and Plug connected equipment not fastened in place should not exceed what amp rating on a 15 A branch circuit?

- a. 7.5 A
- b. 8.0 A
- c. 12 A
- d. 15 A

12. On any given countertop, how far away is a receptacle allowed to be located?

- a. 1 ft
- b. 2 ft
- c. 3 ft
- d. 6 ft

13. A 3000 ft^2 single-family dwelling unit with a 100 A service is being remodeled. The service is 208Y/120 V 3-wire. The unit currently has 3 small appliance circuits, a laundry-washer-(using a gas dryer), a 8 kW electric range, and 3 kW electric heater. A utility/gaming space with additional laundry is to be added. The dryer will again be gas. No additional air conditioning or heating units will be installed, plug and cord connected equipment shall be used for such. The additional floor space is 40 ft x 40 ft. What is the total loading on the remodeled 100 A service?

- a. 75 A
- b. 80 A
- c. 85 A
- d. 125 A

14. What most nearly is the temperature corrected ampacity for 75°C rated copper THHW wire of 4 AWG size in an ambient environment of 50°C?
- a. 63 A
- b. 85 A
- c. 102 A
- d. 105 A

15. Vertically mounted breakers must be mounted such that _____ is ON?
- a. To the Left or Down
- b. To the Right or Down
- c. Down
- d. Up

16. Small conductor overcurrent protection is specifically limited in the NEC. What is the limit for a 10 AWG copper conductor?
- a. 10 A
- b. 15 A
- c. 20 A
- d. 30 A

17. The wire that connects the neutral bus to earth ground is called the _____?
- a. Equipment Safety Ground
- b. Grounding Electrode Conductor
- c. Grounding Electrode Jumper
- d. Neutral Bonding Jumper

18. What is considered the maximum grounding system resistance?
- a. 10 Ω
- b. 12 Ω
- c. 15 Ω
- d. 25 Ω

19. Wires may be used in parallel to avoid difficulties with large conductors, but the wires must be the same _____, the same material, size, and have the same insulation.
- a. bend radius
- b. length
- c. installer
- d. manufacturer

20. Termination provisions for a branch circuit are marked to handle 14 AWG through 1 AWG. The circuit is to carry 80 A in a raceway of 6 current carrying conductors at an ambient temperature of 35°C. Type THWN wire rated for 75°C is the conductor of choice. What size wire should be used?
- a. 4 AWG
- b. 3 AWG
- c. 2 AWG
- d. 1AWG

21. What most nearly is the proper rating a branch circuit conductor supplying three motors, one rated for 5 A and two rated for 3 A apiece?

- a. 3 A
- b. 5 A
- c. 11 A
- d. 13 A

22. Which of the following voltages represents the nominal cell voltage of a Li-Ion battery?

- a. 0.8 V
- b. 1.2 V
- c. 2.0 V
- d. 3.7 V

23. In what direction do anions flow?

- a. Anode to cathode
- b. Cathode to Anode
- c. Direction of Conventional Current Flow
- d. Positive Terminal to Negative Terminal

24. What is the name of a system is one in which the circuit does not develop sufficient energy (measured in mJ) in an arc or spark to cause ignition, nor can an overload condition develop sufficient thermal energy to cause the ignition temperature to be exceeded.

- a. fireproof
- b. inherently safe
- c. intrinsically safe
- d. nonincendive

25. What Class and Division is expected for a facility in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce and explosion?

- a. Class I Division 1
- b. Class I Zone 1
- c. Class I Zone 2
- d. Class II Division 1