

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1. A device that is used to step up generated voltage to make it suitable for commercial transmission is called a _____.
 - (a) power transformer
 - (b) grounding transformer
 - (c) current transformer
 - (d) potential transformer

2. The instantaneous direction of current at a specific moment is known as _____.
 - (a) hysteresis
 - (b) impedance
 - (c) polarity
 - (d) internal resistance

3. Autotransformers are especially practical if the difference between the primary and secondary voltages is _____.
 - (a) as great as possible
 - (b) relatively large
 - (c) relatively small
 - (d) within 15% of factory specifications

4. In a step-down transformer with a 4.16kV primary delta connection and a 480/277V wye secondary, the transformer turns ratio is _____.
 - (a) 11:1
 - (b) 15:1
 - (c) 5:1
 - (d) 9:1

5. The line voltages in a wye (Y) connection are _____.
 - (a) lower than the phase voltages
 - (b) the same as the phase voltages
 - (c) 1.732 times higher than the phase voltages
 - (d) 1.812 times higher than the phase voltages

6. A residence with 120V and 240V loads is likely to be served by a(n) _____.
 - (a) autotransformer
 - (b) three-phase transformer
 - (c) single-phase transformer with two secondaries
 - (d) buck-and-boost transformer

7. Which of the following describes an autotransformer ?
 - (a) A transformer with two secondary windings that can deliver two secondary voltages
 - (b) A transformer that has no electrical metallic connection between the primary and secondary windings
 - (c) A transformer that is normally used with metering equipment when the line voltage is too high for the metering equipment
 - (d) A transformer that uses a single winding for both its primary and secondary

8. Which of the following transformers is the most appropriate type of transformer to use for series street lighting ?

- (a) Potential transformer
- (b) Buck-and-boost transformer
- (c) Current transformer
- (d) Constant-current transformer

9. The secondary current in a constant-current transformer is typically between ____.

- (a) 10A and 20A
- (b) 0.5 and 1A
- (c) 1A and 2A
- (d) 4A and 7.5A

10. A step-down transformer is a type of ____.

- (a) transformer that is considered a low kVA device
- (b) transformer that is usually connected to an electrical instrument, such as an ammeter, voltmeter, wattmeter, or relay
- (c) specialty transformer that is primarily used for small work, such as doorbells and other signaling systems
- (d) transformer that is connected in series with the load

11. Which of the following refers to the total load seen by the current-transformer (CT) secondary ?

- (a) current
- (b) burden
- (c) duty
- (d) potential

12. Potential or voltage transformers are ____.

- (a) single-phase transformers
- (b) three-phase transformers
- (c) control transformers
- (d) buck-and-boost transformer

13. In a potential transformer, the voltage across the secondary terminals is always lower than the primary voltage and is rated at ____ volts.

- (a) 150
- (b) 120
- (c) 100
- (d) 170

14. To select a buck-and-boost transformer use ____.

- (a) standard electrical calculations
- (b) system measurements
- (c) charts provided by the manufacturer
- (d) tables listed in the NEC ®

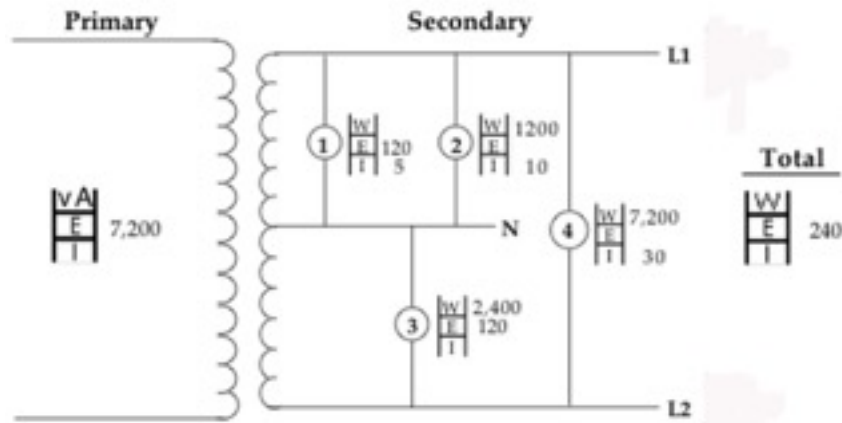
15. How many volts can a 1 kVA buck-and-boost transformer actually carry in the secondary winding ?
- (a) 2.4 kVA (c) 11 kVA
(b) 24 kVA (d) 1 kVA
16. If the resonant frequency is near the harmonic voltage, the resultant harmonic current can ____.
- (a) increase the impedance (c) overheat the windings
(b) decrease the voltage (d) blow the capacitor fuses
17. The frequency of the fourth harmonic is ____.
- (a) 480 (c) 240
(b) 420 (d) 120
18. Which of the following systems is the most likely to be affected significantly by harmonics ?
- (a) Three-phase, three-wire systems with no 120V loads
(b) Three-phase, four-wire systems with nonlinear loads connected to 120V circuits
(c) Three-phase, four-wire systems with no 120V loads
(d) Single-phase, three-wire systems with some loads connected to 120V circuits
19. Neutral overloading in a receptacle branch circuit may be detected by ____.
- (a) a reading of more than 120V to the ungrounded conductor
(b) a reading of more than 2V to ground
(c) the load changing voltage across the circuit
(d) a reading of less than 2V to ground
20. Which of the following is defined as the ratio of the peak value of a waveform to the rms value ?
- (a) Service factor (c) Frequency
(b) Crest factor (d) Eddy current

National Electrical Code Transformer Questions

21. An individual transformer, single-or-polyphase, is identified by a single _____, unless otherwise indicated.
- (a) group (c) nameplate
(b) assembly (d) transformer

22. The maximum percent of overcurrent protection allowed is ____ of the input current to an autotransformer when less than 9 amps.
- (a) 300% (c) 150%
(b) 167% (d) 125%
23. The ventilation shall dispose of the transformer full-load ____ losses without creating a temperature rise that is in excess of the transformer rating.
- (a) sufficient (c) heat
(b) adequate (d) derived
24. Each transformer shall be provided with a nameplate giving the name of the manufacturer; rated kVa; frequency; primary and secondary voltage; impedance of transformers ____ kVa and larger.
- (a) 112 ½ (c) 33
(b) 50 (d) 25
25. Dry-type transformers rated over ____ volts shall be installed in a vault.
- (a) 10,000 (c) 25,000
(b) 12,500 (d) 35,000
26. An Askarel-Insulated transformer 25 kVA installed in a poorly ventilated place shall be furnished with ____.
- (a) the pressure-relief vent connected to a flue that will carry such gases outside
(b) a means for absorbing any gases generated by arcing inside the case
(c) the pressure-relief vent connected to a chimney that will carry such gases outside
(d) all of these
27. The walls and roofs of vaults shall be constructed of materials that have adequate structural strength for the conditions with a minimum fire resistance of ____ hours.
- (a) 4 (c) 2
(b) 3 (d) 1-1/2

28.



29. The turns ratio for the above transformer is _____.

- (a) 240 : 1
(b) 60 : 1
(c) 30 : 1
(d) 4 : 1

30. The total wattage on the secondary is _____.

- (a) 11,400 watts
(b) 6,000 watts
(c) 5,700 watts
(d) 5,400 watts

31. The total current on the secondary is _____.

- (a) 65 amps
(b) 50 amps
(c) 48 amps
(d) 45 amps

32. The total current on the primary is _____.

- (a) 6.4 amps
(b) 3.2 amps
(c) 1.6 amps
(d) 1.1 amps

33. The current flowing on the neutral with all loads on is _____.

- (a) 20
(b) 15
(c) 5
(d) 0

34. The maximum current that the neutral must carry is _____.

- (a) 20
(b) 15
(c) 5
(d) 0

35. Will a 4" by 2½" metallic square box allow (per code) four #14, and five #12 conductors, a single receptacle, a single-pole switch and four #12 grounding conductors ?

- (a) Yes
(b) No