

# National Electrical Code (NEC) Articles Practice Test (Sample)

## Study Guide



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## **Questions**

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- 1. For information on Fixed Electric Heating Equipment for Pipelines and Vessels, refer to which article?**
  - A. Article 408**
  - B. Article 426**
  - C. Article 430**
  - D. Article 440**
- 2. Which conduit is typically used for outdoor installations?**
  - A. Rigid Polyvinyl Chloride Conduit**
  - B. Liquidtight Flexible Metal Conduit**
  - C. Electrical Nonmetallic Tubing**
  - D. Reinforced Thermosetting Resin Conduit**
- 3. What type of devices does Article 280 specifically regulate?**
  - A. Surge-Protective Devices**
  - B. Circuit Protection Devices**
  - C. Surge Arresters**
  - D. Wiring Devices**
- 4. Which article pertains to equipment used for transmitting radio signals?**
  - A. Article 820**
  - B. Article 810**
  - C. Article 830**
  - D. Article 840**
- 5. Which article covers systems that are not legally required but can be used for standby power?**
  - A. Article 705**
  - B. Article 702**
  - C. Article 708**
  - D. Article 760**

- 6. What type of cable is referred to as Type MV?**
- A. Medium Voltage Cable**
  - B. Fiber Optic Cable**
  - C. Low Voltage Cable**
  - D. High Voltage Cable**
- 7. Which article would you refer to for guidelines on network-powered systems?**
- A. Article 810**
  - B. Article 820**
  - C. Article 830**
  - D. Article 840**
- 8. Which NEC article pertains to Air-Conditioning and Refrigerating Equipment?**
- A. Article 408**
  - B. Article 422**
  - C. Article 440**
  - D. Article 411**
- 9. Which type of cable would you typically use for power distribution in industrial settings?**
- A. Type TC**
  - B. Type MC**
  - C. Type NM**
  - D. Type RMC**
- 10. Which article provides guidelines for calculating branch-circuits, feeders, and services?**
- A. Article 210**
  - B. Article 220**
  - C. Article 240**
  - D. Article 250**

## **Answers**

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- 1. B**
- 2. B**
- 3. C**
- 4. B**
- 5. B**
- 6. A**
- 7. C**
- 8. C**
- 9. B**
- 10. B**

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## **Explanations**

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**1. For information on Fixed Electric Heating Equipment for Pipelines and Vessels, refer to which article?**

- A. Article 408**
- B. Article 426**
- C. Article 430**
- D. Article 440**

The correct reference for information on Fixed Electric Heating Equipment for Pipelines and Vessels is found in Article 426 of the National Electrical Code (NEC). This article specifically addresses the requirements for electric heating equipment used in various applications, including pipelines and vessels. Article 426 outlines the design, installation, and maintenance requirements to ensure safety and efficiency in the use of electric heating for controlling the temperature of liquids in piping systems. This is particularly important in contexts such as preventing freezing or ensuring the proper viscosity of materials transported through pipelines. The focus of Article 426 on fixed electric heating equipment distinguishes it from other articles that cover different areas of electrical installations. For instance, other articles address general motor installations, branch circuits, or specific types of electrical equipment, but do not specifically tackle the unique considerations associated with heating elements used in pipelines and vessels.

**2. Which conduit is typically used for outdoor installations?**

- A. Rigid Polyvinyl Chloride Conduit**
- B. Liquidtight Flexible Metal Conduit**
- C. Electrical Nonmetallic Tubing**
- D. Reinforced Thermosetting Resin Conduit**

The choice of conduit for outdoor installations is crucial due to environmental factors such as moisture, temperature fluctuations, and exposure to sunlight. Liquidtight Flexible Metal Conduit is specifically designed to offer protection against these elements. It is made from a flexible metal construction that can withstand various weather conditions while allowing for movement and adjustments in the installation, which is often necessary in outdoor settings. This type of conduit also has a liquidtight seal, preventing water ingress and protecting the electrical conductors inside. While other conduit types, such as Rigid Polyvinyl Chloride Conduit and Electrical Nonmetallic Tubing, have their specific applications and benefits, they may not provide the same level of protection and flexibility required in outdoor scenarios. Reinforced Thermosetting Resin Conduit is also durable; however, it's typically used in different applications where chemical resistance is more critical than flexibility and ease of installation. Thus, Liquidtight Flexible Metal Conduit stands out as the best choice for outdoor installations, ensuring both protection and adaptability to the often challenging outdoor conditions.

### **3. What type of devices does Article 280 specifically regulate?**

- A. Surge-Protective Devices**
- B. Circuit Protection Devices**
- C. Surge Arresters**
- D. Wiring Devices**

Article 280 of the National Electrical Code specifically regulates surge arresters. These devices are essential for protecting electrical equipment by diverting excess voltage caused by surges, such as those from lightning strikes or switching surges. Surge arresters operate by providing a low-resistance path to ground when voltage spikes occur, thus safeguarding connected equipment from damage. The focus on surge arresters in Article 280 includes their installation and the requirements for their connection to grounding systems to ensure that they function effectively. This attention to detail helps create a safer environment for electrical systems and reduces the risk of costly damage or failure. While surge-protective devices and circuit protection devices may be subject to related regulations, they fall under different articles in the NEC. Surge-protective devices, for example, can be covered under Article 282, which details their installation and function, and circuit protection devices may be discussed in other sections pertaining to circuit breakers and fuses. Wiring devices are also addressed in separate articles that cater to the rules governing general wiring practices. Thus, the specific regulation of surge arresters in Article 280 makes them the focus when discussing this part of the NEC.

### **4. Which article pertains to equipment used for transmitting radio signals?**

- A. Article 820**
- B. Article 810**
- C. Article 830**
- D. Article 840**

Article 810 of the National Electrical Code (NEC) specifically addresses the installation requirements for equipment used for radio signal transmission. This article covers various aspects including the installation of antennas, transmission lines, and related equipment, ensuring that they are set up safely and in compliance with electrical standards. The focus of Article 810 is to establish guidelines that minimize hazards associated with electrical installations in radio equipment, such as ensuring proper grounding and protection against lightning strikes. This is particularly important given the unique environments and potential electrical hazards present in radio signal transmission applications. In contrast, other articles mentioned do focus on different aspects of electrical infrastructure. For example, Article 820 pertains to community antenna television (CATV) systems which involve a different set of requirements and equipment. Article 830 is concerned with residential and commercial communication systems while Article 840 deals with low-voltage communication circuits. Each of these articles addresses specific technologies but does not cover the transmission of radio signals as comprehensively as Article 810 does.

**5. Which article covers systems that are not legally required but can be used for standby power?**

**A. Article 705**

**B. Article 702**

**C. Article 708**

**D. Article 760**

Article 702 of the National Electrical Code (NEC) specifically addresses optional standby systems. These systems are designed for use when the primary power source fails, providing a reliable backup through generators or other sources. Unlike systems governed by codes requiring their use during emergencies, Article 702 focuses on installations that are not mandated by law but provide an additional layer of reliability for power supply. This article outlines the requirements and guidelines necessary to ensure safety and functionality in such systems, including installation practices and proper connections to electrical loads. It also specifies provisions for transfer switches, maintenance, and adherence to local codes, ensuring that the optional standby systems can function effectively when needed. In contrast, other articles mentioned—like Article 705, which deals with interconnections between different power sources; Article 708, which covers critical operation areas; and Article 760, which pertains to fire alarm systems—do not specifically focus on the concept of optional standby power sources, thereby solidifying Article 702 as the correct choice for this question.

**6. What type of cable is referred to as Type MV?**

**A. Medium Voltage Cable**

**B. Fiber Optic Cable**

**C. Low Voltage Cable**

**D. High Voltage Cable**

Type MV cable stands for Medium Voltage Cable. This classification is important as it is specifically designed to handle voltages typically ranging from 1kV to 35kV. Medium voltage cables are used in various applications, including power distribution systems where the equipment must operate efficiently and safely at these higher voltages. The design of medium voltage cables incorporates insulation materials and shielding that effectively protect against electrical stress and environmental factors. This ensures reliable performance and safety in both outdoor and indoor applications, such as connecting substations or feeding power to large industrial equipment. Other types of cables, such as Fiber Optic Cable, Low Voltage Cable, or High Voltage Cable, serve different purposes and operate at different voltage levels, making it crucial to accurately identify and use the appropriate type for specific electrical needs.

**7. Which article would you refer to for guidelines on network-powered systems?**

- A. Article 810**
- B. Article 820**
- C. Article 830**
- D. Article 840**

The correct choice focuses on Article 830, which specifically addresses network-powered systems, particularly for information technology equipment and communication systems. This article provides the necessary guidelines for low-voltage communication circuits and covers aspects such as cabling requirements, installation practices, and safety protocols for network-powered systems. Understanding the significance of Article 830 is essential for professionals working with data communication and networking technologies, as it delineates the standards and best practices for these systems, ensuring proper installation and operation while minimizing risks associated with electrical components in network environments. The other articles mentioned cover different aspects of electrical codes; for example, Article 810 deals with radio and television equipment, Article 820 pertains to community antenna television and radio distribution systems, and Article 840 relates to remote control, signaling, and power-limited circuits. Therefore, when dealing specifically with network-powered systems, Article 830 is the most relevant and provides the needed guidance.

**8. Which NEC article pertains to Air-Conditioning and Refrigerating Equipment?**

- A. Article 408**
- B. Article 422**
- C. Article 440**
- D. Article 411**

The article that pertains specifically to Air-Conditioning and Refrigerating Equipment is Article 440. This section of the National Electrical Code (NEC) addresses the requirements for the installation of electrical equipment related to air conditioning and refrigeration systems, which can include both the machinery and the necessary control and power circuits. Article 440 covers essential topics such as motor ratings, branch circuit conductors, disconnecting means, and overcurrent protection, all of which are vital for ensuring that air conditioning and refrigerating equipment operates safely and efficiently. This article provides guidelines that help prevent hazards associated with these systems, including electrical overloads and potential fire risks. Understanding this article is critical for professionals working in the HVAC (Heating, Ventilation, and Air Conditioning) field, as adherence to these guidelines is necessary for compliance with the NEC and for maintaining safe and efficient operation of air conditioning and refrigeration systems.

**9. Which type of cable would you typically use for power distribution in industrial settings?**

**A. Type TC**

**B. Type MC**

**C. Type NM**

**D. Type RMC**

Type MC cable, or Metal-Clad cable, is specifically designed for power distribution in industrial settings due to its robust construction and ability to withstand harsh environments. The metal cladding provides mechanical protection against physical damage, which is essential in industrial areas where equipment and machinery might be in close proximity. Additionally, Type MC cable can carry both power and control circuits, making it versatile for various applications. Type MC is particularly suitable for use in locations where high temperature and moisture are anticipated, offering durability that meets the demands of industrial operations. It is also allowable for use in both dry and wet locations, further enhancing its applicability in diverse industrial scenarios. While Type TC, Type NM, and Type RMC each have specific uses, they do not match the level of protection or the versatility required for power distribution in an industrial environment like Type MC does. For example, Type NM is typically used in residential settings and is not rated for wet locations, making it unsuitable for industrial applications.

**10. Which article provides guidelines for calculating branch-circuits, feeders, and services?**

**A. Article 210**

**B. Article 220**

**C. Article 240**

**D. Article 250**

Article 220 of the National Electrical Code (NEC) specifically addresses the calculations for branch circuits, feeders, and services. This article provides the necessary guidelines to determine the total connected load and the demand factors that must be applied to accurately size conductors and overcurrent protection devices. By following the provisions outlined in Article 220, you can ensure that the electrical system is designed to handle the anticipated load while remaining compliant with safety standards. It covers various aspects, including load calculations for different types of occupancy, like residential and commercial, and specifies how to apply demand factors and load adjustments effectively. This focus on load calculations is crucial for ensuring that systems are neither under nor over-designed, which can lead to inefficiency or safety hazards. Understanding Article 220 contributes to achieving a reliable and code-compliant electrical installation.