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38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

CONNECTICUT OCCUPATIONAL TRADES

VFWGB6RA

CT V7 Antenna Installation D

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for CONNECTICUT OCCUPATIONAL TRADES VFWGB6RA , each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, VFWGB6RA
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

MULTIPLE CHOICE

An installer is mounting a small Yagi antenna on a non-penetrating roof mount ballasted with concrete blocks. Which two of the following items are required components of a proper non-penetrating roof mount assembly? (Choose two.)

- ☒ **A Galvanized steel tripod or quad-pod base frame**
- ☐ **B PVC schedule 40 vent stack through the roof deck**
- ☒ **C Rubber matting or roofing felt under each foot to protect the membrane**
- ☐ **D Soldered coaxial feedline splice inside the ballast tray**
- ☐ **E Lag bolts driven through the roof sheathing into the rafters**

ANSWER A - C

WHY A non-penetrating roof mount (NPRM) consists of a galvanized steel frame (tripod or quad-pod) that sits on the roof surface without penetrating it. Protective padding such as rubber matting or roofing felt is placed under the feet of the frame to prevent damage to the roofing membrane and to provide stability. PVC vent stacks, soldered splices in the ballast tray, and lag bolts through the roof are not part of a non-penetrating mount and would either compromise the waterproofing or are unrelated to the mount assembly.

QUESTION 2

MULTIPLE CHOICE

Antenna installations covered under NEC Article 810 require specific grounding and bonding practices. Which two of the following statements are correct requirements of Article 810? (Choose two.)

- ☒ **A** The antenna mast must be grounded with a minimum 10 AWG copper or 17 AWG copper-clad steel wire.
- ☐ **B** The grounding conductor may be run to any convenient metallic water pipe under the sink as the grounding electrode.
- ☒ **C** The grounding electrode conductor must terminate on a listed grounding electrode such as a ground rod, metal water pipe electrode, or the building grounding electrode system.
- ☐ **D** Bonding of the coaxial cable shield to the grounding electrode is required only when the lead-in enters the building through a non-metallic window frame.
- ☐ **E** The grounding electrode conductor for an antenna system may be solid aluminum of any size.

ANSWER A - C

WHY NEC Article 810.21 requires the antenna mast and lead-in cable to be grounded. The grounding conductor must be at least 10 AWG copper or 17 AWG copper-clad steel, and must terminate on a listed grounding electrode such as a driven ground rod, metal water pipe electrode used as a grounding electrode, or the building's grounding electrode system. Simply using any water pipe under a sink is not sufficient, the bonding of the coaxial shield to the electrode is a general requirement (not limited to window frame entries), and bare solid aluminum is not permitted as the grounding electrode conductor for antenna systems.

QUESTION 3

TRUE FALSE

Under OSHA fall protection requirements, when an antenna installer is working on a residential rooftop where the roof slope is less than 4 in 12 (vertical to horizontal) and the work area is more than 6 feet from the roof edge, no conventional fall protection system (guardrails, safety nets, or personal fall arrest systems) is required.

☒ **A** True☐ B False**ANSWER A**

WHY True. OSHA (29 CFR 1926.501) allows work on low-slope roofs (slope less than 4 in 12) without conventional fall protection when the work is performed more than 6 feet from the roof edge. When work is 6 feet or less from the edge, a guardrail, safety net, or personal fall arrest system must be used. For steep-slope roofs (4 in 12 or greater), fall protection is generally required regardless of distance from the edge.

QUESTION 4

SINGLE CHOICE

While raising an antenna mast on a residential job, the antenna is positioned so that it could come within several feet of a 120/240 volt service drop to the house. What is the minimum safe clearance that must be maintained between the antenna/mast and any energized overhead power line?

☐ A 1 foot☐ B 3 feet☐ C 5 feet☒ **D** 10 feet**ANSWER D**

WHY Under NEC Article 810.18 and OSHA 29 CFR 1926.1408, a minimum clearance of 10 feet must be maintained between any antenna, mast, or lead-in wire and energized overhead power lines carrying up to 600 volts. Antennas must never be installed where contact with power lines is possible, and installers must be aware that wet ropes, guy wires, and conductive masts can become energized if they approach power lines.

QUESTION 5

SINGLE CHOICE

An installer is terminating an outdoor coaxial cable run with an F-connector that will be exposed to weather at the antenna. Which material is recommended to weatherproof the connection?

- ☐ A Standard PVC electrical tape wrapped tightly over the connector body
- ☐ B Silicone grease and electrical tape combined
- ☒ C Self-amalgamating rubber splicing tape followed by a layer of UV-resistant vinyl tape
- ☐ D Hot-melt glue from a glue gun over the connector threads

ANSWER C

WHY The industry-standard method to weatherproof an outdoor coaxial connector is to first wrap the connection with self-amalgamating (self-fusing) rubber splicing tape, which bonds to itself and forms a watertight, weatherproof seal. This is then covered with a layer of UV-resistant vinyl tape to protect the rubber from sunlight degradation. Plain PVC tape alone tends to unwrap and absorb water over time, silicone grease and tape combinations are temporary at best, and hot-melt glue becomes brittle, cracks with temperature cycling, and is difficult to remove for service.

QUESTION 6

SINGLE CHOICE

A customer lives 45 miles from the broadcast transmitters and wants to receive VHF and UHF stations. Which antenna type is most appropriate for this fringe-area installation?

- ☐ A A small set-top passive rabbit-ears antenna with loop
- ☐ B A compact flat-panel amplified indoor antenna
- ☒ C A multi-element directional Yagi or log-periodic antenna designed for VHF/UHF with high front-to-back ratio, mounted outdoors as high as practical
- ☐ D An omnidirectional whip antenna designed for the AM broadcast band

ANSWER C

WHY For fringe-area reception at 45 miles, a high-gain, multi-element directional outdoor antenna designed for both VHF and UHF is required. A Yagi or log-periodic antenna mounted outdoors and as high as practical provides the gain, directivity, and front-to-back rejection needed to pull in weak signals while rejecting noise and interference from behind. Small indoor antennas and set-top antennas do not have sufficient gain for fringe reception, and an AM-band whip is unrelated to VHF/UHF TV reception.

QUESTION 7

SINGLE CHOICE

An installer is performing a rooftop installation and needs to determine the correct compass heading (azimuth) at which to aim a directional TV antenna pointed at transmitters located roughly north-northwest of the customer's home. Which tool is most commonly used to determine this bearing?

- ☐ A A non-contact voltage tester
- ☒ B A compass (or smartphone compass app) used together with a printed signal-location map
- ☐ C A standard 6-foot folding wooden ruler
- ☐ D A coaxial cable continuity tester

ANSWER B

WHY To aim a directional antenna, the installer must determine the azimuth (compass bearing) from the installation site to the transmitter tower. This is normally accomplished with a magnetic compass (or compass app) referenced against a printed or online signal-location map (such as the FCC DTV reception maps or signal locator tools provided by antenna manufacturers). The other tools listed are useful for other parts of the installation but do not provide directional bearing information.

QUESTION 8

SINGLE CHOICE

An installer needs to climb an existing guyed tower to replace an antenna. Before climbing, which inspection item is most critical to verify on the tower itself?

- ☐ A That the coaxial cable has been pre-run up the tower from the ground block
- ☒ B That all tower members, bolts, guy wires, anchors, and the base are in good condition with no signs of corrosion, cracks, or loose hardware
- ☐ C That the TV set in the customer's living room is plugged in and turned on
- ☐ D That the antenna rotor control cable has been pre-tested at ground level

ANSWER B

WHY Before climbing any tower, a thorough visual and mechanical inspection of the tower structure is critical. The climber must verify that tower sections, bolts, guy wires, turnbuckles, anchors, and the base are all in sound condition with no significant corrosion, cracks, bent members, or loose hardware. A failed structural component during a climb can result in serious injury or death. The other items (pre-run cable, customer TV state, rotor cable testing) are installation convenience items, not safety-critical pre-climb inspections.

QUESTION 9

SINGLE CHOICE

A coaxial lightning arrestor is being installed on a lead-in cable at the point where it enters the building. Where must the grounding wire from the arrestor terminate?

- ☐ A To the nearest convenient sheet metal gutter downspout
- ☒ B To the building's listed grounding electrode system, such as the ground rod, metal water pipe electrode, or the building's intersystem bonding termination, using a minimum 10 AWG copper conductor and as short and straight a run as practical
- ☐ C To the screw holding the cover plate of the nearest electrical outlet
- ☐ D To the TV's coax grounding tab inside the living room

ANSWER B

WHY A coaxial lightning arrestor must be bonded to a proper grounding electrode using a minimum 10 AWG copper (or equivalent) conductor. The run should be as short and straight as practical to provide a low-impedance path for a lightning surge. Acceptable electrodes include the building's driven ground rod, metal water pipe electrode (where used as a grounding electrode), ground ring, or the intersystem bonding termination. Terminating to a gutter, a drywall screw, or an indoor TV chassis provides no effective surge path and is unsafe.