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

PRACTICE QUESTIONS

ARIZONA REGISTRAR OF CONTRACTORS

ERGLDM9F

AZ A-17 Electrical and Transmission Lines (Commercial)

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for ARIZONA REGISTRAR OF CONTRACTORS ERGLDM9F , 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, ERGLDM9F
- the question number
- the email address on your order

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

QUESTION 1

SINGLE CHOICE

Under Arizona Registrar of Contractors rules, a license classification must be obtained before a contractor performs any work in that scope. Which classification is required for a contractor who builds and maintains overhead and underground electrical transmission lines for commercial projects in Arizona?

- ☒ **A** A-17 Electrical and Transmission Lines
- ☐ **B** B-1 General Commercial Contractor
- ☐ **C** C-7 Low Voltage Communications
- ☐ **D** L-1 Boiler, Steam and Hot Water

ANSWER A

WHY The A-17 Electrical and Transmission Lines classification specifically covers the construction, alteration, and repair of overhead and underground electrical transmission lines for commercial work. B-1 covers general commercial construction, C-7 is limited to low-voltage communications, and L-1 covers boiler work, none of which authorize transmission line work.

QUESTION 2

SINGLE CHOICE

When pulling conductors into a rigid metal conduit run for a commercial 480V feeder, what NEC requirement must the installer follow regarding the raceway fill?

- ☒ **A** Raceway fill must not exceed 40% of the cross-sectional area of the conduit for three or more conductors.
- ☐ **B** Raceway fill is determined only by the inspector on a case-by-case basis.
- ☐ **C** All conductors in a single conduit must be the same color and insulation type.
- ☐ **D** Fill limits apply only to PVC conduit, not to rigid metal conduit.

ANSWER A

WHY NEC Chapter 9, Table 1 and the associated notes limit the fill of three or more conductors to a maximum of 40% of the cross-sectional area of the raceway, regardless of raceway material. This applies to rigid metal conduit as well as PVC. Fill is not left to inspector discretion in this way, conductors are not required to share insulation type, and metal raceways are not exempt.

QUESTION 3

MULTIPLE CHOICE

Before crew members climb a wooden utility pole to perform energized-line work, which two of the following OSHA-compliant requirements must be satisfied? (Choose two.)

- ☒ **A** Each climber must inspect the pole for visible defects, decay, or damage before ascending.
- ☒ **B** The pole must be inspected and, if it will not support the load, properly secured or braced before work begins.
- ☐ **C** Workers must wear any clothing they choose, provided they have rubber gloves in their pocket.
- ☐ **D** The crew may rely on visual inspection alone to determine if the pole is safe, even when a hammer test indicates internal decay.
- ☐ **E** Rubber insulating gloves must be inspected and air-tested before each use.

ANSWER A - B

WHY OSHA 29 CFR 1910.269 requires a competent person to inspect poles for damage and to ensure the pole is capable of supporting the loads imposed, bracing or guying it as needed. Rubber insulating gloves used for electrical protection must be inspected and air-tested before each shift. The other options contradict these requirements.

QUESTION 4

SINGLE CHOICE

A three-phase transmission line serves a balanced commercial load drawing 150 A at 4,160 V line-to-line. What is the approximate total three-phase power being delivered to the load?

- ☐ **A** Approximately 108 kVA
- ☐ **B** Approximately 624 kVA
- ☒ **C** Approximately 1,081 kVA
- ☐ **D** Approximately 1,800 kVA

ANSWER C

WHY Three-phase apparent power is calculated as $S = \sqrt{3} \times V_{LL} \times I$. With $V_{LL} = 4,160$ V and $I = 150$ A, $S = 1.732 \times 4,160 \times 150 \approx 1,081,000$ VA, or about 1,081 kVA. The other values result from using single-phase formulas or from unit-conversion errors.

QUESTION 5

SINGLE CHOICE

For a new underground 34.5 kV transmission line crossing a paved roadway, which installation method is most commonly specified to minimize future maintenance access issues while providing mechanical protection?

- ☐ **A** Direct-buried cable without any additional enclosure
- ☒ **B** Cable installed in rigid steel conduit or PVC Schedule 40/80 encased in concrete beneath the roadway
- ☐ **C** Cable laid loose in an open trench and covered with backfill only
- ☐ **D** Aerial cable suspended on messenger wire across the roadway

ANSWER B

WHY For high-voltage underground circuits crossing roadways, the standard practice is to install the cable in rigid conduit (metallic or heavy-wall PVC) and typically encase it in concrete for mechanical protection and future replacement. Direct burial or open trench methods do not provide adequate protection under roadways, and aerial messenger crossings are not used at this voltage class for roadway crossings.

QUESTION 6

SINGLE CHOICE

At the base of a transmission-line wood pole that supports a step-down transformer, what is the purpose of installing a driven ground rod connected to the neutral and equipment grounding conductor?

- ☐ A To provide the only return path for normal load current
- ☒ B To provide a low-impedance path to earth for fault current and to help stabilize the neutral under lightning or fault conditions
- ☐ C To eliminate the need for an equipment grounding conductor at the structure
- ☐ D To replace the need for pole-line shielding on the structure

ANSWER B

WHY The driven ground rod at a transformer pole provides a low-impedance path to earth for fault current and helps stabilize the neutral reference under transient events such as lightning. It does not serve as the normal load-current return path, and it works in conjunction with—not as a replacement for—equipment grounding conductors and pole-line shielding.

QUESTION 7 SINGLE CHOICE

When installing a pad-mounted three-phase transformer serving a commercial customer, what is the minimum required working clearance in front of the transformer doors where the live primary and secondary compartments are exposed?

- ☐ A At least 1 ft of clearance at all times
- ☐ B At least 3 ft of clearance, regardless of voltage
- ☒ C Clearance as specified by the NEC for the equipment's voltage and exposed conditions, typically 3 ft to 4 ft or more
- ☐ D No clearance is required if a fence surrounds the pad

ANSWER C

WHY The NEC requires a minimum working space in front of equipment likely to be serviced while energized, with depth determined by the voltage to ground and the conditions present, generally 3 ft to 4 ft or more for equipment in this class. A 1 ft clearance is insufficient, and the presence of a fence does not waive the working-clearance requirement inside the enclosure.

QUESTION 8 SINGLE CHOICE

An A-17 contractor is planning a new 69 kV transmission line crossing a county road. Which document establishes the minimum vertical clearance of the conductors over the road right-of-way?

- ☐ A OSHA 29 CFR 1910.269 general industry standard
- ☒ B The National Electrical Safety Code (NESC) clearance rules
- ☐ C The local telephone company tariff
- ☐ D The contractor's quality control plan

ANSWER B

WHY Minimum clearance of overhead supply conductors over roadways is governed by the National Electrical Safety Code (NESC), which sets specific vertical and horizontal clearances based on voltage and the type of area crossed. OSHA standards address worker safety, not line clearances, and tariff or contractor QC documents do not establish statutory clearances.

QUESTION 9

MULTIPLE CHOICE

A crew is performing live-line maintenance on a 12.47 kV overhead distribution circuit using the rubber-gloving method. Which two of the following items of PPE are required for each worker on the structure? (Choose two.)

- ☒ **A** Class 2 rubber insulating gloves with leather protectors
- ☒ **B** A hard hat (Class E, where indicated) and arc-rated clothing rated for the hazard category
- ☐ **C** Standard cotton work gloves only, with no rubber protection
- ☐ **D** Safety glasses without side shields

ANSWER A - B

WHY For live-line work at this voltage, workers must use rubber insulating gloves of the appropriate class (with leather protectors) and a hard hat, along with arc-rated clothing appropriate for the incident energy exposure. Standard cotton gloves do not provide electrical insulation, and side-shielded eye protection is required when there is a hazard from flying debris or arc.