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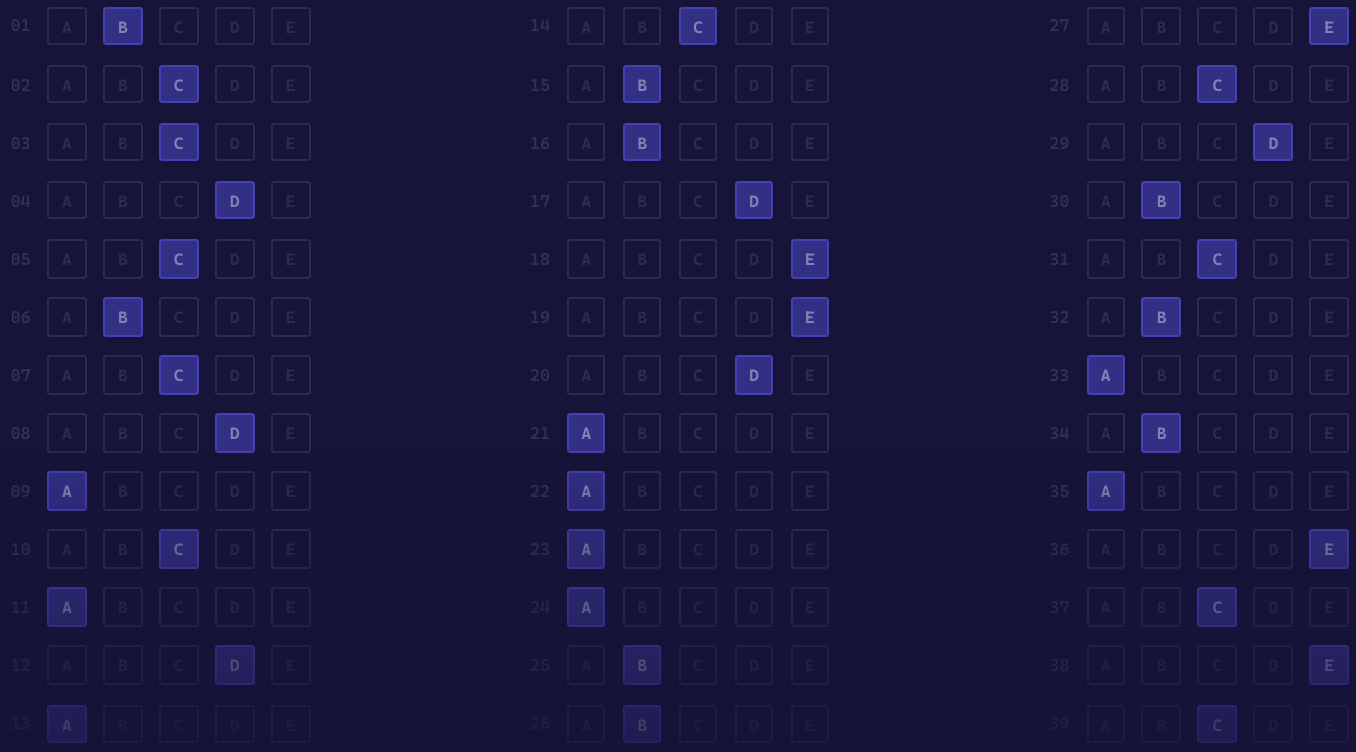

PRACTICE QUESTIONS

American Concrete Institute (ACI)

TUS

TILT-UP SUPERVISOR/TECHNICIAN

EDITION	QUESTIONS	ISSUED
Demo	9	September 3, 2026

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Before you begin

What this is

9 practice questions for American Concrete Institute (ACI) `TUS`, 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:

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QUESTION 1 MULTIPLE CHOICE

Which of the following items must be verified by the tilt-up supervisor/technician prior to casting the floor slab on which panels will be cast? (Choose two.)

A **Slab thickness, steel reinforcement placement, and concrete strength are documented.**

B **Bond-breaker compatibility with the casting surface has been confirmed and the slab surface condition is suitable.**

C Crane operator certifications for the project have been filed with the building department.

D The panel layout drawings have been approved by the owner and the structural engineer of record.

ANSWER **A** · **B**

WHY Before panels are cast, the supervisor/technician must verify the casting slab itself: thickness, reinforcement and concrete strength (A) and confirm the bond-breaker system is compatible and the slab surface is properly prepared (B). Crane operator certification (C) is a site logistics item reviewed prior to lifting, not casting, and panel layout approval (D) is the responsibility of the design team/owner, not the on-site casting verification.

QUESTION 2 MULTIPLE CHOICE

Which of the following are required pre-pour checks for embedded lifting hardware and reinforcing steel in a tilt-up panel? (Choose two.)

A **Lifting inserts are the correct type, location, and orientation per the engineered lifting drawings.**

B **Reinforcing steel size, spacing, and cover match the structural drawings, and inserts are secured against displacement during the pour.**

C The crane's outrigger pad sizes are calculated for the heaviest panel.

D The bond-breaker has been applied at the rate specified by the manufacturer.

ANSWER **A · B**

WHY Pre-pour verification must confirm that lifting inserts match the engineered lifting plan in type, location and orientation (A) and that reinforcing steel matches the structural drawings with proper cover, and that inserts are tied/secured to prevent displacement during concrete placement (B). Crane outrigger calculations (C) belong to the lifting preparation phase, not the pre-pour check. Bond-breaker application (D) is a casting-surface activity performed on the slab, not on panel reinforcement.

QUESTION 3 SINGLE CHOICE

When applying a bond-breaker to the casting slab for tilt-up panels, what is the correct sequence and condition for application per ACI/industry guidance?

A Apply heavy coats of bond-breaker immediately after the slab is finished while bleed water is present, then reapply as needed.

B **Allow the slab to cure sufficiently, then apply the bond-breaker per the manufacturer's specified coverage rate after the surface has dried, building up the recommended film.**

C Apply bond-breaker before placing any reinforcing steel or embeds so they bond to the slab instead of the panel.

D Dilute the bond-breaker 1:1 with water to improve penetration into the slab.

ANSWER B

WHY The bond-breaker must be applied to a cured, dry slab at the manufacturer's specified coverage rate, building up the recommended film thickness (B). Applying during bleed water (A) dilutes and weakens the film, applying before embeds/rebar (C) defeats the purpose, and diluting the product (D) violates the manufacturer's instructions and changes performance.

QUESTION 4 SINGLE CHOICE

During concrete placement in a tilt-up panel, what is the primary purpose of internal vibration of the fresh concrete?

A To reduce the amount of concrete needed by compacting the mix into a smaller volume.

B **To consolidate the concrete around reinforcement and embeds, eliminating large air voids and ensuring bond with the steel.**

C To accelerate setting so the panel can be lifted sooner.

D To push aggregates to the bottom and bring paste to the surface for a smoother finish.

ANSWER B

WHY Internal vibration consolidates the concrete around reinforcement and embedded items, releasing entrapped air and ensuring proper bond between paste, aggregate and steel (B). It does not reduce volume (A), accelerate setting (C), or segregate the mix (D); segregation and excessive paste at the surface are in fact signs of poor vibration practice.

QUESTION 5 SINGLE CHOICE

Before lifting a tilt-up panel, the supervisor/technician must verify that the rigging configuration conforms to the engineered lifting drawings. What document specifically identifies the type, location, and capacity of each lifting insert and the rigging hardware required?

A The structural design drawings for the building.

B **The engineered tilt-up panel lifting drawings prepared by a qualified engineer.**

C The concrete mix design submittal.

D The project schedule.

ANSWER B

WHY The engineered tilt-up panel lifting drawings, prepared by a qualified engineer, identify insert type, location, capacity, and the required rigging hardware and geometry (B). The structural design drawings (A) show the final in-service reinforcement, not the temporary lifting configuration. The mix design (C) and schedule (D) do not define rigging requirements.

QUESTION 6 SINGLE CHOICE

After a tilt-up panel is set on its foundation, what is the minimum number of braces typically required per panel until permanent connections are completed, and to what are they anchored?

A One brace, anchored to the slab only.

B **Two braces minimum on opposing sides of the panel, anchored to the slab or other suitable resisting element.**

C Four braces, anchored to the adjacent panels only.

D No braces are required if the panel is welded to the foundation the same day.

ANSWER B

WHY Industry/ACI guidance requires at least two braces per panel placed on opposing sides to resist lateral loads in any direction, anchored to the slab or another suitable resisting element designed for the brace reactions (B). A single brace (A) cannot resist loads from both directions, four braces to adjacent panels only (C) is not standard, and same-day welding (D) does not eliminate the temporary bracing requirement during cure and connection completion.

QUESTION 7 SINGLE CHOICE

During the lift, the rigging crew observes that one of the panel's pickup inserts is not fully engaged with its void former and the insert is sitting proud of the concrete surface. What is the correct action?

A Lift the panel using only the properly engaged inserts and document the discrepancy after the lift.

B **Stop the lift, lower the panel back to the casting surface if possible, and have the condition evaluated by the engineer of record before any further attempt.**

C Tighten the insert by tapping it flush with a hammer and proceed with the lift.

D Use a longer bolt to engage the insert and continue lifting.

ANSWER B

WHY Any insert that is not properly embedded or is proud of the surface must be evaluated by the engineer of record before lifting; the operation must stop and the panel must be safely returned to the casting position if practical (B). Lifting with compromised inserts (A) risks catastrophic failure, field-tapping an insert (C) does not restore proper engagement, and using longer hardware (D) is an unapproved field modification.

QUESTION 8 SINGLE CHOICE

During panel erection, what is the supervisor/technician's responsibility regarding the exclusion zone and personnel around the panel being lifted?

A **Allow only essential personnel trained in tilt-up operations within the established exclusion zone and verify the zone is clear before each lift cycle.**

B Allow any worker wearing a hard hat within the exclusion zone.

C Permit workers to pass beneath the suspended panel as long as they move quickly.

D Limit the exclusion zone to the immediate footprint of the panel with no radius beyond it.

ANSWER A

WHY The supervisor/technician is responsible for establishing and enforcing an exclusion zone, permitting only essential, trained personnel inside it, and confirming the zone is clear before each lift (A). A hard hat alone (B) is not sufficient, walking beneath a suspended panel (C) is prohibited, and the exclusion zone typically extends beyond the panel footprint to account for swing, brace layout and fall hazards (D).

QUESTION 9 SINGLE CHOICE

For tilt-up panels, what is the typical minimum specified compressive strength (f'c) of the concrete at the time of lifting, and what document governs this value?

A 500 psi at 1 day, per the contractor's schedule.

B **The minimum strength at lifting specified by the engineer of record on the engineered lifting drawings, typically verified by field-cured cylinders or maturity testing.**

C 1,000 psi at 28 days, per the building code.

D The strength listed on the cement bag, per the manufacturer.

ANSWER B

WHY The lift strength is specified by the engineer of record on the engineered lifting drawings and is verified by field-cured cylinders, maturity testing, or other approved methods (B). A fixed 500 psi/1 day value (A) is not a standard, and 28-day strength (C) is irrelevant because lifting occurs at an early age; the cement bag value (D) is not the specified strength.