

01	☒ A	☐ B	☐ C	☐ D	☐ E
02	☐ A	☐ B	☐ C	☒ D	☐ E
03	☐ A	☐ B	☒ C	☐ D	☐ E
04	☐ A	☐ B	☐ C	☐ D	☒ E
05	☐ A	☐ B	☒ C	☐ D	☐ E
06	☐ A	☐ B	☐ C	☒ D	☐ E
07	☐ A	☐ B	☐ C	☐ D	☒ E
08	☐ A	☐ B	☐ C	☐ D	☒ E
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12	☐ A	☐ B	☐ C	☐ D	☒ E
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14	☒ A	☐ B	☐ C	☐ D	☐ E
15	☐ A	☒ B	☐ C	☐ D	☐ E
16	☐ A	☐ B	☐ C	☒ D	☐ E
17	☐ A	☐ B	☐ C	☒ D	☐ E
18	☐ A	☐ B	☐ C	☒ D	☐ E
19	☐ A	☐ B	☒ C	☐ D	☐ E
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21	☒ A	☐ B	☐ C	☐ D	☐ E
22	☐ A	☒ B	☐ C	☐ D	☐ E
23	☒ A	☐ B	☐ C	☐ D	☐ E
24	☐ A	☐ B	☐ C	☐ D	☒ E
25	☐ A	☐ B	☐ C	☒ D	☐ E
26	☐ A	☐ B	☒ C	☐ D	☐ E

27	☐ A	☒ B	☐ C	☐ D	☐ E
28	☐ A	☐ B	☒ C	☐ D	☐ E
29	☐ A	☐ B	☐ C	☒ D	☐ E
30	☐ A	☐ B	☐ C	☐ D	☒ E
31	☐ A	☒ B	☐ C	☐ D	☐ E
32	☐ A	☐ B	☒ C	☐ D	☐ E
33	☒ A	☐ B	☐ C	☐ D	☐ E
34	☐ A	☒ B	☐ C	☐ D	☐ E
35	☒ A	☐ B	☐ C	☐ D	☐ E
36	☒ A	☐ B	☐ C	☐ D	☐ E
37	☐ A	☒ B	☐ C	☐ D	☐ E
38	☐ A	☐ B	☐ C	☐ D	☒ E
39	☐ A	☐ B	☐ C	☒ D	☐ E

PRACTICE QUESTIONS

American Concrete Institute (ACI)

FTT

CONCRETE FIELD TESTING TECHNICIAN-GRADE I

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for American Concrete Institute (ACI) FTT , 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, FTT
- the question number
- the email address on your order

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

QUESTION 1

SINGLE CHOICE

According to ASTM C143, after the final lift of concrete is rodded, the concrete pile is struck off with a tamping rod using a sawing and rolling motion. What is the next required step before lifting the slump cone?

- ☐ A Tap the sides of the cone 5 times with the open hand
- ☒ B Immediately lift the cone vertically in 5 ± 2 seconds
- ☐ C Place the cone on a flat, level, moist, non-absorbent surface
- ☐ D Wait 30 seconds for excess water to drain from the concrete

ANSWER B

WHY Per ASTM C143, immediately after striking off, the mold must be raised vertically in 5 ± 2 seconds. Clearing the base plate and tapping the cone sides are different tests (C231 pressure type meter and C138 procedures, respectively), and no waiting period is specified before lifting.

QUESTION 2

SINGLE CHOICE

In ASTM C231 (pressure method), the petcocks on the air meter are typically closed and water is added through one petcock until it flows from the opposite petcock. This step is performed primarily to:

- ☐ A Calibrate the pressure gauge to the calibrated starting pressure
- ☒ B Saturate the interior surface of the cover assembly and eliminate air pockets above the concrete
- ☐ C Determine the aggregate correction factor for the specific mix
- ☐ D Displace air from the concrete sample before sealing the chamber

ANSWER B

WHY Filling through one petcock until water emerges from the opposite petcock displaces air trapped in the cover assembly above the concrete. Aggregate correction is determined separately per Appendix statements, and gauge calibration is performed with the empty meter.

QUESTION 3

SINGLE CHOICE

For ASTM C138, after consolidating and striking off the measure, what is the correct procedure for measuring the mass of the measure plus concrete?

- ☐ A Weigh on a scale accurate to within 0.1 lb while the concrete is still fluid
- ☒ B Weigh on a scale accurate to 0.1 lb after striking off and cleaning the exterior of the measure
- ☐ C Weigh on any scale, then subtract the tared mass of the empty measure at any later time
- ☐ D Weigh on a scale accurate to 0.5 lb only after the concrete has hardened

ANSWER B

WHY ASTM C138 requires weighing the filled measure on a scale accurate to within 0.1 lb (or 0.05 kg) after the surface is struck off and the outside of the measure has been cleaned of any spilled concrete. The concrete mass is the difference between this mass and the calibrated mass of the empty measure, not the air-dry mass.

QUESTION 4

MULTIPLE CHOICE

Which of the following statements about ASTM C172 sampling and ASTM C31 specimen handling are correct? (Choose two.)

- ☐ **A** Composite samples used for strength tests are formed by combining equal portions of two or more grab samples taken within 15 minutes
- ☒ **B** Sample discharge from a mixer greater than 1 yd³ must be obtained from the middle third of the batch
- ☒ **C** Initial field curing of cylinders must maintain the surface within 60-80°F and prevent moisture loss for up to 48 hours before stripping
- ☐ **D** Slump, air, and temperature tests must be started within 15 minutes after the composite sample is collected

ANSWER B - C

WHY ASTM C172 requires that for mixers > 1 yd³, samples be taken from the middle third of the batch; grabs must be combined and remixed within 15 min. ASTM C31 requires field curing to maintain 60-80°F with moisture retention for up to 48 hours before stripping and moving to lab curing. Slump/air/temp tests must start within 5 minutes after sampling (not 15), and composite samples are not used for strength tests when sampling is required per C172.

QUESTION 5

SINGLE CHOICE

When performing a slump test, the slump cone is held down firmly during filling by standing on the two foot pieces. What is the smallest rod that must be used to rod the concrete?

- ☒ **A** A smooth steel rod 5/8 in. (16 mm) in diameter and approximately 24 in. (600 mm) long with one rounded end
- ☐ **B** A smooth steel rod 3/8 in. (10 mm) in diameter and approximately 12 in. (300 mm) long with one rounded end
- ☐ **C** A smooth steel rod 3/4 in. (19 mm) in diameter and approximately 24 in. (600 mm) long with one rounded end
- ☐ **D** Any straight steel rod at least 12 in. (300 mm) long, regardless of diameter

ANSWER A

WHY ASTM C143 requires a 5/8 in. (16 mm) diameter tamping rod about 24 in. (600 mm) long with the last 1/2 in. rounded to a hemispherical tip. Rods smaller or larger do not meet the standard's tamping requirements.

QUESTION 6

MULTIPLE CHOICE

A Field Testing Technician documents a strength test result, a slump value, an air content value, and temperature on an ACI-style field report. Which items are required to be recorded on the report? (Choose two.)

- ☐ **A** Exact mixing water added at the plant
- ☒ **B** Weather conditions and ambient temperature at the time of sampling
- ☐ **C** Average compressive strength for each cylinder
- ☒ **D** Identification of the truck, batch ticket number, and time sampled

ANSWER B - D

WHY ACI Field Reports require identification of the truck and batch (mixer/load number, ticket number, sampled by, time sampled), ambient/weather conditions, and the test values. Mixing water added at the plant and the final compressive strength are not recorded on the Technician's field test report.

QUESTION 7

SINGLE CHOICE

Per ASTM C1064, the temperature of freshly mixed concrete is measured by inserting the thermometer into the concrete sample. For what minimum duration should the device remain in the concrete before the reading is taken?

- ☐ A 10 seconds or until the reading stabilizes
- ☒ B 2 minutes minimum, or until the reading stabilizes
- ☐ C 5 minutes minimum, regardless of reading
- ☐ D Until the concrete begins to lose workability

ANSWER B

WHY ASTM C1064 requires the temperature measuring device to remain immersed in the fresh concrete for a minimum of 2 minutes, or until the reading stabilizes. A reading must be accurate to within 1°F (0.5°C). 10 seconds is too short and 5 minutes is not specified by this test method.

QUESTION 8

SINGLE CHOICE

ASTM C172 requires that a composite sample used for slump, air content, and temperature tests be remixed thoroughly before beginning tests. Which of the following best describes how the composite sample must be collected and what the requirements are?

- ☐ A Three grabs from anywhere in the batch combined and remixed within 10 minutes
- ☒ B Two or more grabs obtained at regular intervals during discharge, combined within 15 minutes
- ☐ C A single grab from the middle third is mixed with one grab from the last third before testing
- ☐ D Four grabs sampled by any method and remixed within 30 minutes

ANSWER B

WHY ASTM C172 requires that composite samples be obtained by collecting two or more grab samples at regularly spaced intervals during a portion of the discharge. The composite sample must be remixed within 15 minutes of obtaining the first portion. For mixers > 1 yd³, grabs are taken from the middle third; for truck mixers and agitators, from two or more widely separated portions.

QUESTION 9

SINGLE CHOICE

When molding ASTM C31 compressive strength cylinders, the technician is required to place the concrete in the mold in layers and rod each layer. What is the required number of layers and rod penetrations per layer for 6 × 12 in. cylinders?

- ☐ A Two layers with 25 rod penetrations each
- ☒ B Three equal layers with 25 rod penetrations each
- ☐ C Three equal layers with 15 rod penetrations each
- ☐ D One layer vibrated internally with no rod penetrations

ANSWER B

WHY ASTM C31 requires 6 × 12 in. cylinders to be filled in three equal layers, each rodded 25 times with the tamping rod. Rodding is required even when internal vibration is used for 4 × 8 in. cylinders only (under specific conditions), and the layer count/rods differ for 4 × 8 in. cylinders.