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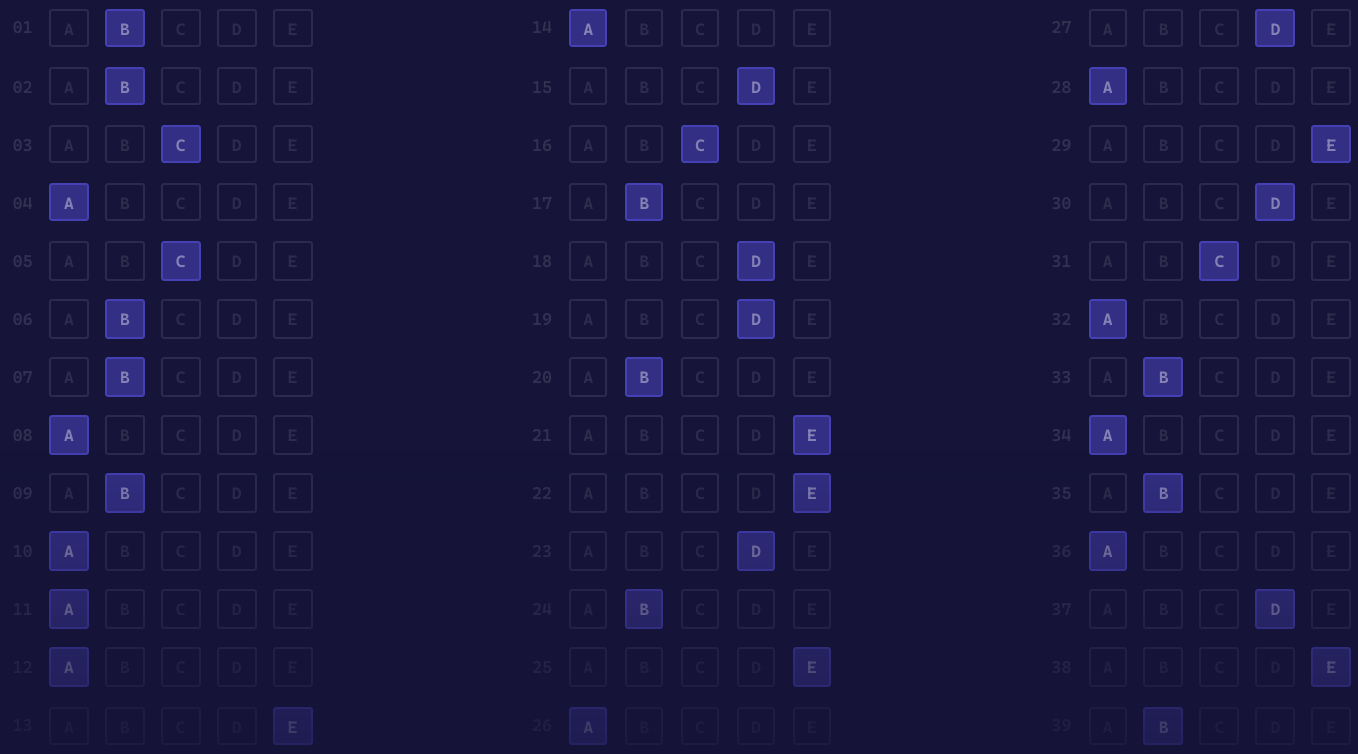

PRACTICE QUESTIONS

American Petroleum Institute: Individual Certification Programs (API)

653I

653 - Aboveground Storage Tanks (Translated)

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for American Petroleum Institute: Individual Certification Programs (API) `653I`, 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, `653I`
- the question number
- the email address on your order

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

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QUESTION 1 SINGLE CHOICE

During an external visual inspection of an aboveground storage tank, the inspector notes settlement at the tank shell-to-bottom junction on the south side. According to API 653 inspection practice, which condition most directly warrants immediate attention?

A Uniform discoloration of the external shell paint from weathering

B A localized gap appearing between the shell and the bottom plate at the junction

C Minor waviness on the top course shell plate

D Light surface rust on accessible appurtenances

ANSWER B

WHY Settlement that produces a visible gap between the shell and the bottom plate indicates loss of support and possible foundation failure, which is a serious condition requiring immediate evaluation. Uniform paint weathering, mild top-course waviness, and light surface rust on appurtenances are not settlement-driven defects.

QUESTION 2 SINGLE CHOICE

When evaluating ultrasonic thickness measurement (UTM) data for a tank bottom, which value should be used as the governing remaining thickness for a corroded area according to API 653?

A The arithmetic average of all readings in the corroded area

B The maximum reading within the corroded area

C The minimum reading within the corroded area

D The median reading within the corroded area

ANSWER C

WHY API 653 requires that the minimum measured thickness within a corroded area be used as the governing thickness for evaluation. Using averages or maximums is non-conservative and would understate the actual loss of material.

QUESTION 3 SINGLE CHOICE

For an aboveground storage tank that has been in service beyond its initial service period, what is the maximum interval permitted by API 653 for subsequent external inspections?

A Every year

B Every 2 years

C Every 5 years

D Every 10 years

ANSWER C

WHY API 653 requires external inspections at intervals not exceeding 5 years (and internal inspections on a schedule tied to corrosion rate and tank type). An interval of 1 or 2 years is not the maximum, and 10 years exceeds the permitted interval for external inspection.

QUESTION 4 SINGLE CHOICE

When replacing a section of the annular ring plate on a tank bottom, what minimum overlap is required at the lap joint between the new and existing bottom plate per API 653?

A At least 1 inch (25 mm) overlap

B At least 2 inches (50 mm) overlap

C At least 4 inches (100 mm) overlap

D At least 6 inches (150 mm) overlap

ANSWER B

WHY API 653 specifies that the minimum overlap at annular ring plate lap joints shall be at least 2 inches (50 mm). Overlaps less than this do not provide adequate weld area and load transfer for in-service bottom plate replacement.

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QUESTION 5 SINGLE CHOICE

An inspector calculates a shell course corrosion rate of 12 mils per year (0.012 in/yr) from successive UT surveys. According to API 653, which statement best describes how this corrosion rate should be applied?

A Use the calculated rate as the long-term corrosion rate regardless of survey spacing

B Average it with the assumed original rate of 1 mpy used for design

C Use it to determine remaining corrosion life and confirm the inspection interval

D Disregard it because single-shell tanks use a fixed 5 mpy rate

ANSWER C

WHY API 653 uses the measured corrosion rate (commonly via the 'c' value from successive UT surveys) to compute remaining corrosion life, which in turn drives the next inspection interval. The other options misrepresent how calculated corrosion rates are applied or rely on outdated assumptions.

QUESTION 6 SINGLE CHOICE

For a fixed-roof tank on a ringwall foundation, API 653 limits edge settlement to a measured value based on which tank dimension?

A Tank height

B Tank diameter

C Shell course thickness

D Roof slope

ANSWER B

WHY API 653 settlement limits for fixed-roof tanks are expressed as a function of tank diameter (for example, differential edge settlement and uniform settlement criteria reference the tank's diameter). Tank height, shell thickness, and roof slope are not the controlling dimension for settlement limits.

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QUESTION 7 SINGLE CHOICE

A welder is performing an API 653 repair on a tank shell using the shielded metal arc welding (SMAW) process. Which standard governs the welder's performance qualification for this work?

A API 1104

B ASME Section IX

C AWS D1.1

D API 653 Annex E

ANSWER B

WHY Welding procedure and performance qualifications for API 653 work are performed in accordance with ASME Section IX. API 1104 covers pipelines, AWS D1.1 covers structural welding, and while API 653 contains repair provisions, qualification is referenced to ASME Section IX.

QUESTION 8 SINGLE CHOICE

Prior to granting entry for an internal inspection, which condition must be confirmed by the inspector according to API 653?

A The tank has been filled with product to within 6 inches of the top

B The tank atmosphere has been tested and confirmed safe for hot work

C The tank has been gas freed, cleaned, and isolated from product sources

D The roof legs have been adjusted to maximum extension

ANSWER C

WHY API 653 requires that the tank be gas freed, cleaned, isolated from connected piping and product sources, and a safe entry permit issued before inspectors enter. Filling with product, hot work atmosphere, and roof-leg adjustment are unrelated to entry safety prerequisites.

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QUESTION 9 MULTIPLE CHOICE

According to API 653, which of the following actions are considered alterations requiring engineering review? (Choose two.)

A **Replacing an entire bottom plate with a change in bottom plate thickness or material**

B **Increasing the maximum design liquid level of the tank**

C Touch-up of exterior shell paint in a small corroded area

D Replacement of an existing shell course with one of the same thickness and same material

ANSWER **A · B**

WHY API 653 classifies changes that alter the design basis of the tank (such as changing the bottom plate thickness/material or raising the maximum design liquid level) as alterations, which require engineering review per Annex A. Routine paint touch-up and like-for-like shell course replacement are considered repairs, not alterations.

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