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39	A	B	C	D	E

PRACTICE QUESTIONS

American Petroleum Institute: Individual Certification Programs (API)

BFJA

Bolted Flange Joint Assembler

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for American Petroleum Institute: Individual Certification Programs (API) **BFJA**, 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, **BFJA**
- 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 API's BFJA certification scope, a flange joint assembler is expected to demonstrate understanding of bolted joint fundamentals primarily based on which API publication that defines the design, materials, and gasket selection criteria for flanged joints?

- ☒ **A** API Standard 570, "Piping Inspection Code"
- ☐ **B** API Standard 510, "Pressure Vessel Inspection Code"
- ☐ **C** API Standard 610, "Centrifugal Pumps"
- ☐ **D** API Specification 6A, "Wellhead and Christmas Tree Equipment"

ANSWER A

WHY The BFJA program references API 570 (Piping Inspection Code) as the primary basis for the bolted joint fundamentals covered in the exam, including inspection, gasket, and bolting considerations. API 510 governs pressure vessels rather than piping flange joints, API 610 covers centrifugal pumps, and API 6A covers wellhead equipment — none are the foundational reference for BFJA.

QUESTION 2

SINGLE CHOICE

During pre-assembly inspection, a flange face is found to have deep radial scoring across the gasket seating area. The most appropriate action by the BFJA assembler is to:

- ☐ **A** Proceed with assembly since gaskets will conform to minor surface variations
- ☒ **B** Repair the flange face in accordance with approved procedures or remove the component from service
- ☐ **C** Use a thicker gasket to bridge the damaged area
- ☐ **D** Apply additional bolt torque to compensate for the irregular surface

ANSWER B

WHY Damaged flange faces must be repaired to accepted limits using qualified procedures, or the component must be removed from service. Continuing with a damaged face, using a thicker gasket to mask the defect, or adding torque are all improper corrective actions that compromise joint integrity and are not accepted BFJA practice.

QUESTION 3

SINGLE CHOICE

When receiving bolts for a flanged joint assembly, which marking combination is typical for an ASTM A193 B7 stud used in high-temperature/pressure refinery service?

- ☐ A Plain shank with no head markings
- ☐ B ASTM A307 grade marking with the manufacturer symbol only
- ☒ C "B7" marking on the stud end and the manufacturer's identification on the bolt head
- ☐ D B8 marking on the head indicating a stainless Class 1 material

ANSWER C

WHY ASTM A193 B7 studs are commonly identified by a "B7" marking on the stud and the manufacturer's symbol on the head. Plain studs with no markings, A307 grade symbols, and "B8" stainless markings all correspond to different bolting materials not selected for typical high-temperature B7 service.

QUESTION 4

SINGLE CHOICE

What is the correct order in which an assembler should apply the initial tightening pass of the bolts on a flanged joint?

- ☐ A Tighten opposite flanges first, then work toward each other around the joint
- ☐ B Tighten bolts in a numbered sequence, beginning with bolt #1 and continuing clockwise
- ☒ C Tighten bolts in a four-bolt, diametrically opposite, star or cross pattern repeated around the joint
- ☐ D Tighten sequentially around the joint in one direction without opposing any bolt

ANSWER C

WHY The accepted method is to tighten bolts in a star (cross) pattern, applying torque to diametrically opposite bolts so the flange face stays parallel and the gasket loads evenly. This is repeated in multiple increasing passes until final torque is reached. Numbering sequentially, going around one direction, or starting from outside flanges does not evenly distribute gasket load.

QUESTION 5 SINGLE CHOICE

Which of the following conditions is most commonly a reason that a gasket must NOT be reused during a flange joint reassembly?

- ☒ **A** The gasket shows visible loss of thickness or surface damage, indicating it has been permanently compressed
- ☐ **B** The gasket was installed less than one calendar year prior to the current outage
- ☐ **C** The gasket is of the same nominal size and pressure class as originally specified
- ☐ **D** The flange assembly has more than 12 bolt holes

ANSWER A

QUESTION 6 SINGLE CHOICE

Prior to installing the gasket and tightening the bolts, the assembler must verify which geometric condition?

- ☐ **A** Flanges must be aligned so that the bolt holes are offset no more than 90 degrees from each other
- ☐ **B** Flanges must be separated by at least one gasket thickness of gap before tightening
- ☒ **C** Flanges must be aligned parallel with bolt holes concentric and the gasket contact surfaces in full contact
- ☐ **D** Flanges must be welded to the adjacent piping before bolts are installed

ANSWER C

WHY Proper fit-up requires the flange faces to be parallel, concentric, with bolt holes that align, and the gasket contact surfaces fully engaged. A 90-degree hole offset, a pre-tightening gap of one gasket thickness, and welding adjacent piping before bolt-up are not valid fit-up criteria.

QUESTION 7

SINGLE CHOICE

A BFJA assembler understands that the primary purpose of tightening the bolts on a flanged joint is to:

- ☒ **A Compress the gasket to create a seal and to hold the joint together against internal pressure, with sufficient residual load after operating conditions**
- ☐ B Elastically stretch the bolts to their yield strength to maximize clamping force
- ☐ C Pull the flanges together so that their raised faces (RF) bottom out on each other
- ☐ D Eliminate the need for any hydrostatic testing of the completed piping

ANSWER A

WHY Bolt torque is applied to seat (compress) the gasket, develop the gasket stress needed for a leak-tight seal, and hold the joint under operating internal pressure and external loads while retaining sufficient residual load. Stretching bolts to yield, relying on raised-face metal-to-metal contact for sealing, or skipping hydrotest are all incorrect principles.

QUESTION 8

SINGLE CHOICE

After the final torque pass has been completed on a flanged joint, the assembler's recommended next step for verifying the integrity of the assembly is to:

- ☐ A Immediately release the assembly for service without further checks
- ☒ **B Use a calibrated torque wrench to verify that bolts have been torqued correctly and record results per the work plan**
- ☐ C Hammer each nut with a brass mallet to confirm tightness
- ☐ D Apply additional torque to every bolt a second time before testing

ANSWER B

WHY Verification of a completed joint typically includes confirming bolt torque with a calibrated wrench and recording the results against the work plan. Releasing without verification, hammer-testing, and a blanket second torque pass are not accepted BFJA verification practices.

QUESTION 9

SINGLE CHOICE

Which flange face finish is characterized by a continuous spiral or concentric groove pattern produced by a phonographic tool and is commonly specified for use with soft gaskets such as compressed non-asbestos sheet?

- ☒ **A** Stock finish (125–250 $\mu\text{in Ra}$)
- ☐ **B** Smooth finish (less than 125 $\mu\text{in Ra}$)
- ☐ **C** Serrated finish
- ☐ **D** Ring-type joint (RTJ) finish

ANSWER A

WHY API 570/ASME B31.3 and flange specifications define a 'stock finish' as the default 125–250 $\mu\text{in Ra}$ phonographic (spiral or concentric) groove pattern, which is the finish typically paired with soft non-metallic gaskets. A smoother finish below 125 $\mu\text{in Ra}$ is generally used with metal gaskets that need a harder surface, a serrated finish is a roughened alternative, and RTJ finish refers to ring-joint groove geometry rather than a face finish pattern.