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QA/QC INSPECTOR

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ARAMCO APPROVAL

EXAM PREPARATION GUIDE

ISO 9001:2015 | ASME IX | AWS D1.1 | API 510 / 570 | ARAMCO SAES

Complete Study Guide — QA/QC Principles, Standards & 200 Questions

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QA/QC INSPECTOR — ARAMCO APPROVAL — EXAM PREPARATION GUIDE

Field	Detail
Series	Saudi Aramco QA/QC Inspector Exam Preparation
Document	Complete Study Guide — QA/QC Principles, Standards & 200 Questions
Reference Standard	ISO 9001:2015 / ASME IX / AWS D1.1 / API 510 / API 570 / ARAMCO SAES / Saudi Labour Law
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HOW TO USE THIS GUIDE

This guide is written for inspectors, engineers, and technicians preparing for the Saudi Aramco QA/QC Inspector Approval examination. It covers all core technical areas tested in the approval process, followed by 200 exam questions with a full answer key.

Section	Content
Part 1 — QA/QC Roles & Responsibilities	Core duties, authority, ISO 9001 principles, what Aramco expects from a QC Inspector
Part 2 — Inspection & Test Plans (ITP)	ITP structure, Hold Points, Witness Points, Review Points, Aramco ITP requirements
Part 3 — Non-Conformance & CAPA	NCR process, root cause analysis, corrective and preventive action, close-out
Part 4 — Welding Quality Control	WPS/PQR, ASME IX, AWS D1.1, visual inspection, NDT methods
Part 5 — Dimensional Inspection & Tools	Measurement tools, tolerances, fit-up, coating inspection
Part 6 — Key Standards & Formulas	ISO 9001, ASME, API, AWS, SAES — all QC formulas with worked examples
Part 7 — 200 Exam Questions	8 topic areas, 3 options per question (A/B/C), answer key on last page only
Passing Score	Aim for 180+/200 (90%) before sitting the real exam
How to Study	Read Parts 1–6 first. Attempt all 200 questions. Score. Re-study weak areas.

PART 1 — QA/QC ROLES & RESPONSIBILITIES

1.1 WHAT IS A QA/QC INSPECTOR?

A QA/QC Inspector is the designated person responsible for verifying that materials, workmanship, and completed work conform to the specified requirements — including project specifications, engineering drawings, international standards (ISO, ASME, AWS, API), and Saudi Aramco engineering standards (SAES). On Aramco projects, the QC Inspector role requires specific Aramco approval — a formal certification demonstrating the competence to perform quality verification to Aramco's required standard.

EXAM WEIGHT

QA/QC roles, responsibilities, and authority appear in approximately 20–25% of all exam questions.
Know exactly what a QC Inspector CAN do, MUST do, and CANNOT do.
The difference between QA (system-level) and QC (product/activity-level) is a key exam topic.

1.2 DIFFERENCE BETWEEN QA AND QC

Aspect	Quality Assurance (QA)	Quality Control (QC)
Definition	System and process focused — ensures right processes are in place	Product and activity focused — verifies output meets requirements
When	Before and during work — proactive	During and after work — verification
Who	QA Manager / QMS Auditor	QC Inspector / QC Engineer
Document	Quality Plan, Procedures	ITP, Inspection Reports, NCRs
Standard	ISO 9001:2015	ASME, AWS, API, SAES, Drawings
Example	Audit that WPS is approved before welding	Inspect completed weld against WPS acceptance criteria

1.3 SEVEN CORE DUTIES OF THE QC INSPECTOR

Duty 1 — Document Review

Review and verify all applicable documents are current, approved, and available at the work front before work begins — drawings, specifications, WPS, ITPs, and material certificates.

Duty 2 — Material Verification (MTC Review)

Verify all materials are to the specified grade with a valid Mill Test Certificate (MTC). No material without a valid MTC may be installed on an Aramco project.

Duty 3 — In-Process Inspection

Perform inspection at all Hold Points and Witness Points in the ITP. In-process inspection catches defects early — before they are buried in subsequent work.

Duty 4 — Dimensional Inspection

Verify completed work meets drawing requirements — fit-up, alignment, tolerances, weld profiles, coating thickness, bolt torque. Record actual values — not just 'OK'.

Duty 5 — NCR Initiation and Follow-Up

Issue a Non-Conformance Report (NCR) for any item that does not meet requirements. The inspector has authority and duty to stop work on a non-conforming activity.

Duty 6 — Test Witnessing

Witness all tests specified in the ITP — hydrostatic, pneumatic, holiday, hardness, and functional tests. Confirm calibration, parameters, and acceptance criteria before the test begins.

Duty 7 — Documentation and Records

Maintain complete, accurate, and legible inspection records. QC records are permanent project documents — signed, dated, retained as specified. Falsifying QC records is gross misconduct.

CRITICAL — Stop Work Authority for QC Inspector
The QC Inspector has authority to stop work when a non-conformance is identified.
No supervisor or manager can override a valid stop-work for quality non-conformance.
In the exam: if an NCR situation is described, the correct action is always STOP — DOCUMENT — ESCALATE.

PART 2 — INSPECTION & TEST PLANS (ITP)

2.1 WHAT IS AN ITP?

An Inspection and Test Plan (ITP) is the primary quality control document identifying every inspection and test activity required — specifying what is inspected, when, by whom, to what standard, and the acceptance criteria. On Saudi Aramco projects, the ITP must be submitted and approved by Aramco before work commences.

2.2 ITP INSPECTION POINT TYPES

Symbol	Point Type	Definition	Work Proceed Without Clearance?
H	Hold Point	Work MUST stop — Aramco inspector must physically attend and sign off before any further work	NO — never
W	Witness Point	Inspector must be notified — if inspector does not attend after due notice, work may proceed	YES — after due notice
R	Review Point	Inspector reviews the document only — no physical attendance required	YES — document review only
M	Monitor	Inspector may visit at any time — random unannounced checks	YES — at all times

EXAM CRITICAL — Hold Point vs Witness Point
Hold Point: work CANNOT proceed without the inspector's signature — regardless of schedule.
Witness Point: contractor must give advance notice — but if inspector does not attend, work MAY proceed.
Most common wrong answer: saying work can proceed at a Hold Point without clearance. It cannot. Ever.

2.3 SAMPLE ITP — PIPELINE WELDING

Activity	Reference	Acceptance Criteria	Contractor	Aramco	3rd Party
Material Receiving	SAES-L-350 / MTC	Cert verified, dimensions correct	H	R	—
Joint Fit-Up	WPS / Drawing	Gap, alignment, bevel per WPS	H	W	—
Pre-Heat Verification	WPS	Min preheat temp confirmed	H	W	—
In-Process Weld	ASME IX / AWS D1.1	No cracks, porosity, undercut	H	W	W
Visual Weld (Final)	ASME IX	AWS D1.1 Table 6.1 criteria	H	H	W
NDE — RT / UT	SAES-L-350	Per specified acceptance standard	H	H	H
Hydrostatic Test	ASME B31.3	No leaks at test pressure	H	H	H

Activity	Reference	Acceptance Criteria	Contractor	Aramco	3rd Party
Documentation Review	QCP / ITP	All records complete and signed	H	R	—

PART 3 — NON-CONFORMANCE REPORTS (NCR) & CAPA

3.1 NCR PROCESS — STEP BY STEP

A Non-Conformance Report (NCR) is issued when any material, product, or activity does not meet the specified requirements. It triggers a controlled process of identification, segregation, evaluation, and corrective action.

Step 1 — Identification: Stop the activity. Tag the non-conforming item with a HOLD tag (Red).

Step 2 — Documentation: Raise the NCR. Record description, location, spec reference, date, inspector name. Assign NCR number.

Step 3 — Notification: Notify QC Supervisor and contractor PM. Notify Aramco per project NCR procedure.

Step 4 — Disposition: Four options — USE-AS-IS (Concession), REPAIR, REWORK, or REJECT/SCRAP.

Step 5 — Root Cause Analysis: Identify root cause using 5-Why or Fishbone (Ishikawa) diagram.

Step 6 — Corrective Action: Contractor submits CAPA — timeline and responsibility assigned.

Step 7 — Verification: Inspector verifies corrective action is effective. Re-inspect the item.

Step 8 — Close-Out: NCR closed only when all CAPA items are verified complete. Retained as permanent record.

3.2 NCR DISPOSITION OPTIONS

Disposition	Meaning	Aramco Approval Required?
USE-AS-IS (Concession)	Item accepted without repair — engineering justification required	YES — mandatory
REPAIR	Brought to acceptable condition — may not meet original spec	YES — repair procedure approved
REWORK	Fully reworked to meet original specification	Inspector re-inspection required
REJECT / SCRAP	Cannot be brought to compliance — removed from project	Documented disposal required

EXAM NOTE — Use-As-Is Disposition
A Use-As-Is (Concession) means the item is accepted without meeting the original specification.
It requires a formal Engineering Concession Request — approved by Aramco Engineering.
The QC Inspector CANNOT approve Use-As-Is alone — Aramco approval is mandatory.

PART 4 — WELDING QUALITY CONTROL

4.1 WPS, PQR AND WQT

Document	Full Name	Purpose	Who Prepares
WPS	Welding Procedure Specification	Defines welding parameters — preheat, filler, current, position, interpass temp	Contractor — Aramco approved
PQR	Procedure Qualification Record	Test record proving WPS produces acceptable welds — mechanical test results	Contractor — tested in lab

Document	Full Name	Purpose	Who Prepares
WQT	Welder Qualification Test	Proves individual welder can produce acceptable welds using qualified WPS	Per welder — ASME IX

4.2 VISUAL WELD INSPECTION — ACCEPTANCE CRITERIA (AWS D1.1)

Visual inspection is the FIRST NDT method applied to every weld — performed before any other NDT.

Defect Type	Definition	Acceptable Limit
Porosity	Gas pockets trapped in weld metal	Max 3/8" (10mm) diameter — frequency limits apply
Undercut	Groove melted into base metal at weld toe	Max 1/32" (0.8mm) depth
Overlap	Weld metal extending beyond toe without fusion	Not acceptable — any amount
Crack	Any fracture in weld or HAZ	Not acceptable — any crack
Incomplete Fusion	Lack of bond between weld passes	Not acceptable
Arc Strike	Accidental arc on base metal outside weld zone	Not acceptable — remove and MT test

4.3 NDT METHODS

Method	Abbr.	Detects	Limitation
Visual Testing	VT	Surface defects — cracks, porosity, profile	Surface only
Liquid Penetrant Testing	PT	Surface-breaking defects only	Cannot detect sub-surface
Magnetic Particle Testing	MT	Surface and near-surface in ferromagnetic material	Ferromagnetic only
Radiographic Testing	RT	Volumetric — porosity, slag, incomplete fusion	Radiation hazard — exclusion zone
Ultrasonic Testing	UT	Volumetric — planar defects, cracks, laminations	Skilled operator required
Hardness Testing	HT	Material hardness — PWHT verification	Hardness only — not defects

PART 5 — DIMENSIONAL INSPECTION & MEASUREMENT TOOLS

Tool	Measures	Accuracy	Key Use in QC
Vernier Caliper	OD, ID, length, depth	±0.02 mm	Dimensional verification of machined components
Micrometer	OD of round sections	±0.01 mm	Precise OD measurement — pipe, bar, fasteners
Weld Gauge (Bridge Cam)	Weld profile, fillet size, undercut	±0.5 mm	Visual weld inspection — profile conformance
UT Thickness Gauge	Wall thickness	±0.1 mm	Corrosion assessment, incoming material check
DFT Gauge (Elcometer)	Dry film thickness of coating	±1–2 um	Coating inspection per SSPC / SAES-H-001
Torque Wrench	Bolt tightening torque	±4%	Flange assembly per ASME B16.5 / drawing
Thermocouple	Pre-heat and interpass temperature	±2 degrees C	Weld inspection per WPS requirement

Tool	Measures	Accuracy	Key Use in QC
Holiday Detector	Coating continuity	DC/AC Voltage	Coating inspection — all buried/submerged pipe

PART 6 — QA/QC MATHEMATICAL FORMULAS

Every formula below has appeared in Aramco QC approval examinations. Learn the formula, the variables, and work through the example.

Formula 1 — Corrosion Rate (CR)

```
CR (mm/year) = (t1 - t2) / number of years
```

Variables: t1 = previous thickness (mm) | t2 = current thickness (mm)

Example: t1=12.5mm, t2=11.3mm, 3 years => CR = (12.5 - 11.3) / 3 = 0.40 mm/year

Note: Used for pressure vessels (API 510), piping (API 570), and storage tanks (API 653).

Formula 2 — Remaining Life (RL)

```
RL (years) = (t_actual - t_minimum) / CR
```

Variables: t_actual = current thickness (mm) | t_minimum = minimum required thickness (mm) | CR = corrosion rate

Example: t_actual=11.3mm, t_min=8.0mm, CR=0.40 => RL = (11.3 - 8.0) / 0.40 = 8.25 years

Note: Next inspection interval = RL divided by 2 (not to exceed API maximum interval).

Formula 3 — Minimum Wall Thickness (ASME B31.3)

```
t_min = (P x D) / (2 x (S x E + P x Y))
```

Variables: P = design pressure (MPa) | D = outside diameter (mm) | S = allowable stress (MPa) | E = weld joint factor | Y = 0.4 for temp below 480 degrees C

Example: P=5, D=219mm, S=138MPa, E=1.0, Y=0.4 => t_min = (5x219) / (2x(138+2)) = 1095 / 280 = 3.91 mm

Note: Add corrosion allowance (CA) to t_min for actual specified thickness: t_specified = t_min + CA

Formula 4 — Hydrostatic Test Pressure (ASME B31.3)

```
P_test = 1.5 x P_design x (S_test / S_design)
```

Variables: P_design = design pressure | S_test = allowable stress at test temperature | S_design = allowable stress at design temperature

Example: P_design = 10 MPa, same temperature => P_test = 1.5 x 10 = 15 MPa

Note: Pneumatic test = 1.1 x P_design (requires Aramco special approval where hydrostatic is not practicable).

Formula 5 — Weld Acceptance Rate (%)

```
Acceptance Rate (%) = (Accepted Welds / Total Welds Inspected) x 100
```

Variables: Accepted Welds = welds that passed all NDT without repair | Total Welds = total submitted for inspection

Example: 180 accepted, 200 total => Acceptance Rate = (180 / 200) x 100 = 90%

Note: Aramco typically requires minimum 97% weld acceptance rate. Below this triggers a quality hold.

Formula 6 — Repair Rate (%)

```
Repair Rate (%) = (Repaired Welds / Total Welds Inspected) x 100
```

Variables: Repaired Welds = welds requiring repair after initial NDT | Total Welds = total submitted

Example: 20 repairs, 200 total => Repair Rate = (20 / 200) x 100 = 10%

Note: Repair Rate above 5% typically triggers a procedural review and additional welder testing.

Formula 7 — DFT Coverage (%) — SSPC-PA2

```
DFT Coverage (%) = (Readings within spec / Total readings) x 100
```

Variables: Readings within spec = DFT readings meeting min/max spec | Total readings = all readings taken

Example: 85 readings in spec, 100 total => Coverage = (85 / 100) x 100 = 85%

Note: SSPC-PA2 requires 90%+ of readings to meet minimum DFT. No single reading below 80% of minimum.

Formula 8 — Fillet Weld Throat Thickness

```
Throat (a) = Leg Length (z) x 0.707
```

Variables: z = fillet weld leg length (mm) | 0.707 = sin 45 degrees for equal-leg fillet

Example: Leg z = 10mm => Throat a = 10 x 0.707 = 7.07 mm

Note: The effective throat determines fillet weld strength. AWS D1.1 specifies minimum throat size per material thickness.

Formula 9 — NDE Quantity Required

```
NDE Qty = Total Welds x (NDE % / 100)
```

Variables: Total Welds = total in scope | NDE % = specified inspection percentage

Example: 200 welds, 10% RT required => NDE Required = 200 x (10 / 100) = 20 welds

Note: Random selection must be done by QC Inspector or third party — NOT by the welder.

Formula 10 — Process Capability Index (Cpk)

```
Cpk = minimum of: (USL - mean) / (3 x sigma)  OR  (mean - LSL) / (3 x sigma)
```

Variables: USL = Upper Specification Limit | LSL = Lower Specification Limit | mean = process average | sigma = standard deviation

Example: USL=10, LSL=2, mean=6, sigma=1 => Cpk = min[(10-6)/3, (6-2)/3] = 1.33

Note: Cpk 1.33 or above = capable process. Cpk below 1.0 = process not capable — immediate action required.

PART 7 — KEY STANDARDS

Standard	Title	What It Covers
ISO 9001:2015	Quality Management System	QMS requirements — document control, NCR, CAPA, internal audit
ASME IX	Welding Qualifications	WPS, PQR, WQT — qualification for welding procedures and welders
AWS D1.1	Structural Welding — Steel	Visual acceptance criteria, weld profiles, NDT requirements
ASME B31.3	Process Piping	Design, fabrication, inspection, and testing of process piping
ASME VIII Div 1	Pressure Vessels	Design, fabrication, inspection, testing, and marking
API 510	Pressure Vessel Inspection	In-service inspection, corrosion rate, remaining life, repair
API 570	Piping Inspection	In-service piping inspection, thickness monitoring, repair
API 653	Storage Tank Inspection	Inspection, repair, alteration of above-ground storage tanks
SAES-W-011	Welding — On-Plot	Aramco welding requirements for process plant piping and equipment
SAES-L-350	Plant Piping Construction	Aramco standard for plant piping construction and inspection
SAES-H-001	Coating — Aramco	Protective coating selection, surface preparation, DFT inspection
SSPC-PA2	Coating DFT Measurement	Procedure for measuring and evaluating dry film thickness
NACE MR0175	Sour Service Materials	Materials for H2S environments — hardness limits (22 HRC max)
Saudi Labour Law	Royal Decree M/51	Worker rights, employer obligations — QC documentation requirements

PART 8 — EXAM QUESTION BANK — 200 QUESTIONS

Item	Detail
Total Questions	200
Answer Options	3 per question (A, B, C)
Topic Areas	8 sections covering all QA/QC Inspector exam topics
Answer Key	Last page only — do not look until finished
Passing Score	Aim for 180+ (90%) before sitting the real exam

INSTRUCTIONS

1. Answer all 200 questions before checking the answer key.
2. Write your answer (A, B, or C) next to each question number.
3. Time yourself — allow approximately 1.5 minutes per question.
4. Answer key is on the LAST PAGE ONLY — do not look until finished.
5. Any topic below 70% — re-read the relevant section.

Q	QUESTION	OPTIONS (A / B / C)
SECTION 1 — QA/QC ROLES & RESPONSIBILITIES (Q1–25)		
1	**Who issues an NCR when a non-conformance is identified?**	A The project manager B The QC Inspector — it is their duty C The client representative only
2	**Primary difference between QA and QC?**	A QA is product inspection; QC is system management B QA is process/system focused; QC is product and activity verification focused C They are the same
3	**What must a QC Inspector do when a non-conformance is identified?**	A Continue work and report later B Stop activity, tag item, raise NCR, notify QC Supervisor C Ask supervisor whether to continue
4	**ISO 9001:2015 governs?**	A Welding procedure qualification B Quality management system requirements C Piping inspection intervals
5	**ITP stands for?**	A Inspection and Testing Procedure B Inspection and Test Plan C Internal Testing Protocol
6	**Hold Point (H) requires?**	A Inspector should attend but work can proceed if they don't B Work must stop — inspector must attend and sign off before any further work C Document review only
7	**Witness Point (W) requires?**	A Work must stop until inspector attends B Inspector must be notified — if not present after due notice, work may proceed C Document review only
8	**Review Point (R) requires?**	A Inspector must physically attend B Inspector reviews the document only — no attendance required C Work must stop
9	**Materials arrive without MTC. Correct action?**	A Allow installation and request MTC later B Stop — raise NCR — no material without valid MTC may be installed C Proceed if material looks correct
10	**What is material traceability?**	A Knowing where material is stored

Q	QUESTION	OPTIONS (A / B / C)
		B Ability to trace material back to MTC — heat number, cast, certificate C Marking materials with project number
11	**What must QC Inspector receive before starting on a new site?**	A Hard hat and boots B Site induction, document review, ITP and applicable standards C A toolbox talk
12	**QC Inspector role on Aramco requires?**	A General quality experience B Current Saudi Aramco QC Inspector Approval C Any ISO 9001 training certificate
13	**Purpose of a Quality Control Plan (QCP)?**	A Define project schedule B Define how quality will be controlled — inspections, documentation, hold points C List QC team members
14	**Who approves the ITP on an Aramco project?**	A Contractor QC Manager B Saudi Aramco — ITP must be approved before work commences C Project manager
15	**What is a concession (Use-As-Is)?**	A Permission to skip inspection B Formal acceptance of non-conforming item without repair — Aramco Engineering approval required C Temporary work permit
16	**NCR close-out requires?**	A Supervisor signature only B Verified corrective action — inspector re-inspects and confirms effectiveness C PM approval
17	**Correct NCR sequence?**	A Repair first then raise NCR B Identify, Stop, Tag, Document, Notify, Disposition, Root Cause, CAPA, Verify, Close C Raise NCR then close at month end
18	**CAPA stands for?**	A Corrective and Preventive Action B Calibration and Pressure Assessment C Contractor Approval Process Application
19	**Root cause analysis should use?**	A Professional judgement only B 5-Why or Fishbone (Ishikawa) diagram to identify the fundamental cause C Simple description of what happened
20	**Standard governing welding procedure qualification on Aramco?**	A AWS D1.1 only B ASME IX with Aramco SAES-W-011 supplementary requirements C ISO 9001:2015
21	**Difference between REWORK and REPAIR?**	A They are the same B Rework = back to full spec; Repair = acceptable condition but may not meet original spec C Repair done by QC Inspector
22	**QC Inspector must verify calibration?**	A Annually only B Before each use — valid calibration certificate must be current C When problem suspected
23	**Which is NOT a valid NCR disposition?**	A Use-As-Is B Ignore and continue C Reject/Scrap
24	**Purpose of QC hold tag?**	A Identify equipment needing maintenance B Physically identify and segregate non-conforming item — prevent accidental installation C Mark equipment for inspection
25	**In the exam — if NC identified, the answer is always?**	A Continue work and report later B STOP — raise NCR — do not allow work to continue on the non-conforming item C Ask supervisor first

Q	QUESTION	OPTIONS (A / B / C)
SECTION 2 — WELDING QUALITY CONTROL (Q26–50)		
26	**WPS stands for?**	A Welding Performance Standard B Welding Procedure Specification C Work Permit System
27	**PQR stands for?**	A Procedure Quality Record B Procedure Qualification Record — test record proving WPS produces acceptable welds C Project Quality Report
28	**Who prepares the WPS on Aramco project?**	A Individual welder B Contractor — submitted and approved by Aramco before use C QC Inspector
29	**Purpose of Welder Qualification Test (WQT)?**	A Test welding machine B Prove individual welder can produce acceptable welds using qualified WPS C Qualify welding procedure
30	**Standard governing welder qualification?**	A AWS D1.1 B ASME IX C ISO 9001
31	**Visual inspection of welds must be performed?**	A After all NDT complete B Before any other NDT — VT is always the first inspection C Only when specified in ITP
32	**Which weld defect is NEVER acceptable?**	A Minor porosity within limits B Any crack — in the weld or HAZ C Slight undercut within permitted depth
33	**What is undercut in a weld?**	A Weld metal extending beyond toe B Groove melted into base metal at weld toe — reduces effective thickness C Incomplete fusion at root
34	**What is an arc strike?**	A Normal welding arc B Accidental arc on base metal outside weld zone — remove and MT test C Starting defect inside weld
35	**HAZ stands for?**	A High Alloy Zone B Heat-Affected Zone — base metal affected by welding heat C Hardness Assessment Zone
36	**Purpose of pre-heating before welding?**	A Speed up welding B Reduce cooling rate — prevent hydrogen cracking and reduce HAZ hardness C Improve welder visibility
37	**What is the interpass temperature limit?**	A Minimum temperature before welding B Maximum weld temperature between passes — exceeding reduces mechanical properties C Temperature of filler rod
38	**PWHT stands for?**	A Pre-Weld Heat Treatment B Post-Weld Heat Treatment — stress relief applied after welding C Pressure Weld Hold Temperature
39	**Which NDT detects only surface-breaking defects?**	A Radiographic Testing (RT) B Liquid Penetrant Testing (PT) C Ultrasonic Testing (UT)
40	**Which NDT requires ferromagnetic material?**	A Liquid Penetrant Testing B Magnetic Particle Testing (MT) C Ultrasonic Testing
41	**Best NDT for volumetric defects — porosity and slag?**	A Visual Testing (VT) B Radiographic Testing (RT) C Magnetic Particle Testing

Q	QUESTION	OPTIONS (A / B / C)
42	**Which NDT requires an exclusion zone?**	A Ultrasonic Testing B Radiographic Testing (RT) — radiation hazard C Liquid Penetrant Testing
43	**Radiography Permit on Aramco requires?**	A Any work permit B Dedicated Radiography Work Permit with controlled exclusion zone C No permit if done at night
44	**UT stands for?**	A Under Testing B Ultrasonic Testing C Uniform Testing
45	**Porosity found on RT weld. Acceptance evaluated against?**	A Always acceptable B Full AWS D1.1 criteria — frequency and distribution limits also apply C Always rejected
46	**Fillet weld throat formula?**	A Throat = Leg x 1.414 B Throat = Leg x 0.707 C Throat = Leg / 2
47	**What must be recorded on weld inspection report?**	A Inspector name only B Weld ID, WPS reference, actual measured results, date, inspector signature C PASS or FAIL only
48	**Purpose of welder's stamp?**	A Decorative B Identify which qualified welder produced each weld — for traceability C Indicate completion
49	**QC Inspector must check BEFORE welder starts?**	A Correct PPE B Valid approved WPS, welder qualified for joint/process, preheat confirmed C New welding machine
50	**Hardness limit sour service per NACE MR0175?**	A No limit B 22 HRC maximum (approximately 248 HV) C 35 HRC maximum
SECTION 3 — DIMENSIONAL & COATING (Q51–75)		
51	**Tool to measure dry film thickness of coating?**	A Vernier caliper B Elcometer (DFT gauge) C UT thickness gauge
52	**SSPC-PA2 — percentage of DFT readings must meet minimum spec?**	A 70% B 90% — no single reading below 80% of specified minimum C 100%
53	**Purpose of holiday detector?**	A Measure coating colour B Detect pinholes in coating — all buried and submerged pipe C Measure coating adhesion
54	**Purpose of Bridge Cam gauge?**	A Measure pipe wall thickness B Measure weld profile, fillet leg size, and undercut depth C Measure coating thickness
55	**Bolt torque must be applied?**	A Any order B In star/cross pattern for even gasket compression — per ASME B16.5 C Clockwise only
56	**Fit-up inspection verifies?**	A Final dimensions after completion B Joint gap, alignment, bevel angle, cleanliness per WPS before welding C Components fit in warehouse
57	**Surface preparation Sa 2.5 means?**	A Light brush-off blasting B Near-white metal blast — removes 95%+ of mill scale, rust, and contaminants C White metal blast (100%)

Q	QUESTION	OPTIONS (A / B / C)
58	**Minimum temperature difference between steel surface and dew point before coating?**	A 1 degree C B 3 degrees C — moisture entrapment risk within 3 degrees of dew point C 10 degrees C
59	**What is a holiday in coating inspection?**	A Scheduled break B Discontinuity (pinhole) in coating that exposes the substrate C Thick spot in coating
60	**Purpose of surface preparation before coating?**	A Improve colour B Remove mill scale, rust, contaminants — achieve cleanliness and profile for adhesion C Make surface look clean
61	**Anchor profile (surface profile) is?**	A Coating colour B Surface roughness from blasting — provides mechanical key for coating adhesion C Primer coat thickness
62	**Coating inspection report per SAES-H-001 must document?**	A Only final coat DFT B Surface cleanliness, blast profile, ambient conditions, DFT per coat, holiday test results C Inspector comments only
63	**What is cold cracking (hydrogen cracking)?**	A Cracking during welding arc B Cracking after welding — hydrogen diffusion in HAZ — can occur hours later C Surface oxidation
64	**MTC in material inspection stands for?**	A Material Transport Certificate B Mill Test Certificate — documents chemical composition, mechanical properties, heat number C Machine Test Confirmation
65	**Heat number traceability means?**	A Tracking temperature history B Trace material back to specific melt heat via MTC C Recording preheat temperatures
66	**PMI stands for?**	A Visual identification B Positive Material Identification — XRF or OES analysis to confirm actual composition C Colour coding
67	**PMI is required for?**	A All carbon steel B Alloy and stainless steel where incorrect material could cause catastrophic failure C Painted surfaces
68	**What is a hydrostatic test?**	A Functional valve test B Pressure test using water at 1.5x design pressure — verifies structural integrity and leak tightness C Flow test
69	**Before hydrostatic test confirm?**	A Area is empty B Calibration current, parameters match spec, safety barricade in place, vents open for air purge C Good weather
70	**Purpose of MTC review?**	A Check price B Verify material grade, heat number, chemical and mechanical properties before installation C Confirm delivery date
71	**Green inspection release tag means?**	A Requires inspection B Item inspected and accepted — cleared for further processing or installation C Item on hold
72	**Red hold tag means?**	A Item passed B HOLD / REJECTED — do not use or install C Awaiting delivery
73	**Calibration certificate for test equipment must be?**	A Valid for project duration B Current and traceable to national standards — checked before each use

Q	QUESTION	OPTIONS (A / B / C)
		C Renewed annually only
74	**Purpose of snoop test?**	A Measure coating adhesion B Apply leak detection fluid to pressurised joint — bubbling indicates a leak C Soil contamination
75	**First article inspection (FAI) is?**	A Inspection of first delivery B Comprehensive inspection of first produced item before full production proceeds C Inspection of first weld
SECTION 4 — STANDARDS & FORMULAS (Q76–100)		
76	**Corrosion rate formula?**	A CR = (t1 + t2) / years B CR = (t1 - t2) / years C CR = t1 x t2
77	**t1=10.0mm (3 years ago), t2=9.4mm now. CR?**	A 0.3 mm/year B 0.2 mm/year — (10.0-9.4)/3 = 0.2 C 0.6 mm/year
78	**t_actual=9.4mm, t_min=7.5mm, CR=0.2. Remaining life?**	A 5 years B 9.5 years — (9.4-7.5)/0.2 C 3.8 years
79	**Next inspection interval for remaining life 9.5 years?**	A 9.5 years B 4.75 years — remaining life / 2 C 2 years
80	**Hydrostatic test pressure per ASME B31.3?**	A 1.1 x design pressure B 1.5 x design pressure x (S_test/S_design) C 2.0 x design pressure
81	**Design pressure 8 MPa. Hydrostatic test pressure (same temp)?**	A 8.8 MPa B 12 MPa — 1.5 x 8 C 16 MPa
82	**150 welds, 12 repaired. Repair rate?**	A 6% B 8% — (12/150) x 100 C 12%
83	**Aramco minimum weld acceptance rate?**	A Above 80% B Minimum 97% C Above 90%
84	**Fillet weld leg 8mm. Throat?**	A 8mm B 5.66mm — 8 x 0.707 C 4mm
85	**USL=20, LSL=10, mean=15, sigma=1.5. Cpk?**	A 0.83 B 1.11 — min[(20-15)/(3x1.5), (15-10)/(3x1.5)] C 1.33
86	**Cpk 1.11 indicates?**	A Not capable B Marginally capable — monitor closely. Target is Cpk 1.33 or above C Excellent
87	**200 welds, 10% RT required. How many?**	A 10 B 20 — 200 x (10/100) C 2
88	**RT sample selection must be done by?**	A The welder B QC Inspector or third party — random, NOT by welder C Project manager
89	**90 DFT readings, 82 in spec. Coverage?**	A 82% B 91.1% — (82/90) x 100 — meets SSPC-PA2 C 90%
90	**Minimum pipe wall formula ASME B31.3?**	A t = P x D / S B t = (P x D) / (2 x (S x E + P x Y)) C t = P / (S x D)

Q	QUESTION	OPTIONS (A / B / C)
91	**In ASME B31.3 formula E represents?**	A Elastic modulus B Weld joint quality factor (1.0 full RT, 0.85 spot RT, 0.70 no RT) C Elongation
92	**Corrosion allowance (CA) is?**	A Safety factor B Additional wall thickness added to t_min to account for expected corrosion over design life C Measurement tolerance
93	**API 510 governs?**	A New vessel design B In-service inspection, repair, and alteration of pressure vessels C Piping inspection
94	**API 570 governs?**	A Pressure vessel inspection B In-service piping inspection — thickness monitoring, repair, inspection intervals C Storage tank inspection
95	**API 653 governs?**	A Piping systems B Above-ground storage tank inspection, repair, alteration, and reconstruction C Pressure vessel design
96	**SAES-W-011 governs?**	A Coating application B Welding requirements for on-plot piping and equipment on Aramco projects C Lifting and rigging
97	**SAES-H-001 governs?**	A Welding procedures B Protective coating selection, surface preparation, and application on Aramco projects C Structural inspection
98	**NACE MR0175 is?**	A Fire protection standard B Materials for H2S-containing environments — sour service C Welding standard
99	**Hardness limit carbon steel sour service NACE MR0175?**	A 35 HRC max B 22 HRC max (approximately 248 HV) C No limit
100	**Weld acceptance rate formula?**	A (Total / Accepted) x 100 B (Accepted / Total inspected) x 100 C (Rejected / Total) x 100
SECTION 5 — ITP & DOCUMENTATION (Q101–125)		
101	**Who approves ITP before work commences?**	A Contractor QC Manager B Saudi Aramco C Project safety officer
102	**Purpose of QC dossier?**	A Store drawings B Compile all QC records, test reports, MTCs, NCRs as permanent project documentation C Daily progress record
103	**When must inspection records be completed?**	A End of week B At time of inspection — not retrospectively C When project complete
104	**Red-line drawing is?**	A Drawing marked in red B As-built drawing showing actual installed configuration — including field changes C Drawing needing urgent action
105	**MRB stands for?**	A Material Review Board — reviews and dispositions non-conforming materials B Monthly Record Book C Material Receipt Book
106	**How long must QC records be retained?**	A 1 year B As specified in project quality plan — typically design life of the asset

Q	QUESTION	OPTIONS (A / B / C)
		C 5 years
107	**Document control in ISO 9001?**	A Filing alphabetically B Only current approved revisions in use at work fronts — obsolete versions removed C Scanning documents
108	**What is an internal quality audit?**	A Client audit B Systematic examination of QMS by the organisation — verify procedures are followed C Financial audit
109	**NCR records must be?**	A Kept by inspector personally B Logged in formal NCR register — numbered, tracked, closed within agreed timelines C Destroyed after close-out
110	**What must be on every inspection report?**	A Date only B Document reference, revision, activity, actual results, acceptance criteria, date, inspector signature C Project name only
111	**QC record falsification is?**	A Warning letter B Gross misconduct — immediate removal from project, potential company deregistration C A fine
112	**What is a Method Statement?**	A Safety document only B Step-by-step description of how an activity will be carried out — must be approved before work starts C Progress report
113	**Purpose of pre-inspection meeting (PIM)?**	A Team introduction B Align contractor, Aramco, third party on ITP, hold points, documentation before work starts C Schedule review
114	**What is punch-list inspection?**	A Inspection during work B Final inspection identifying outstanding deficiencies before handover — each must be closed C Safety inspection
115	**Category A punch-list item is?**	A Minor cosmetic defect B Safety-critical or functional deficiency — must be resolved before commissioning C Documentation issue
116	**ITR stands for?**	A Inspection Test Record B Inspection and Test Record — completion certificate confirming all ITP activities signed off C Internal Technical Review
117	**Aramco SATIP is?**	A Training programme B Saudi Aramco Template Inspection Procedure — standardised checklist for specific activities C Technical Inspection Plan
118	**QMS stands for?**	A Quality Monitoring System B Quality Management System — policies, processes, procedures to achieve quality objectives C Quality Measurement Schedule
119	**Customer satisfaction monitoring per ISO 9001 requires?**	A Ask clients if happy B Systematically collect and analyse customer perception data — surveys, feedback, metrics C Annual reports only
120	**Purpose of internal audit programme?**	A Find people to blame B Verify QMS is implemented and effective — identify improvement opportunities C Satisfy client only
121	**Quality objective is?**	A A wish B Measurable target aligned with quality policy — e.g. weld acceptance rate 97% or above C An audit finding

Q	QUESTION	OPTIONS (A / B / C)
122	**Corrective action (CA) is?**	A Temporary fix B Action to eliminate root cause of non-conformance — preventing recurrence C Action to hide defect
123	**Preventive action (PA) is?**	A Action after incident B Proactive action to eliminate cause of potential non-conformance before it occurs C Repeated corrective action
124	**Management review in ISO 9001?**	A Daily site meeting B Top management review of QMS performance — resource decisions and improvement actions C Financial review
125	**Product release is?**	A Shipping product B Formal authorisation to proceed to next stage — after all specified inspections verified complete C End of project
SECTION 6 — PRESSURE TESTING & INSPECTION (Q126–150)		
126	**Before pressure test QC Inspector must confirm?**	A Area is empty B Equipment calibration current, parameters match spec, safety barricade established, vents open C Good weather
127	**What is a pneumatic test?**	A Water test B Pressure test using air or inert gas — used when hydrostatic is not practicable — Aramco approval required C Coating test
128	**Why is pneumatic testing more hazardous?**	A It is not B Compressed gas stores far more energy — rupture is explosive rather than liquid release C Higher pressure used
129	**Pneumatic test pressure per ASME B31.3?**	A 1.5 x design pressure B 1.1 x design pressure C 2.0 x design pressure
130	**After successful hydrostatic test confirm?**	A Paint condition B No leaks — drain and dry system properly before recommissioning C Pressure gauge still reading
131	**Purpose of PWHT?**	A Prevent porosity B Reduce residual stresses and prevent hydrogen cracking — mandatory for certain materials and thicknesses C Prevent undercut
132	**QC Inspector during PWHT must?**	A Observe only B Verify thermocouple placement, record time-temperature profile, confirm hold temp and soak time per WPS C Sign chart without checking
133	**Pressure test without approved procedure — correct action?**	A Accept if test passed B Stop — raise NCR — test must be voided and repeated with approved procedure C Approve retrospectively
134	**Flange make-up inspection verifies?**	A Flange is painted B Correct gasket, correct bolt grade and length, correct torque sequence — per ASME B16.5 C Flange rating plate
135	**API 598 governs?**	A Pressure vessel inspection B Valve inspection and testing — seat leakage, shell test, backseat test C Piping inspection
136	**NDT to verify PWHT hardness?**	A Radiographic Testing

Q	QUESTION	OPTIONS (A / B / C)
		B Hardness Testing — Vickers or Brinell on weld and HAZ C Magnetic Particle Testing
137	**Weld hardness 265 HV on sour service pipe?**	A Acceptable B Not acceptable — exceeds NACE MR0175 limit of 248 HV (22 HRC) C Acceptable if PWHT done
138	**Carbon equivalent (CE) used for?**	A Calculate weld cost B Assess steel weldability and determine preheat requirements C Measure weld strength
139	**CE = C + Mn/6. For C=0.18, Mn=0.9, CE is?**	A 0.18 B 0.33 — 0.18 + 0.9/6 = 0.33 C 0.50
140	**CE above 0.41 generally indicates?**	A No preheat needed B Preheat likely required — weldability reduced, HAZ cracking risk increases C Material rejected
141	**Purpose of inspection stamp on fabricated items?**	A Decorative B Item passed specified inspection — QC release for further processing C Mark material grade
142	**GFCI protection required for?**	A All electrical equipment B Portable electrical equipment used outdoors or in wet areas C Fixed installations only
143	**Leading quality indicator is?**	A NCR count (lagging) B ITP compliance rate — percentage of hold and witness points met as scheduled C Repair rate (lagging)
144	**Lagging quality indicator is?**	A Audit compliance rate B Weld repair rate — measures defects that already occurred C ITP compliance rate
145	**Risk-based thinking in ISO 9001:2015?**	A Safety risk only B Identifying and addressing risks that could affect product quality and QMS effectiveness C Financial risk
146	**Difference between verification and validation?**	A No difference B Verification: confirms requirements met (built it right?); Validation: confirms intended use (right thing?) C Validation more detailed
147	**Concession in ISO 9001?**	A Skip inspection B Permission to use non-conforming product — for defined quantity or time C An NCR
148	**Supplier evaluation is?**	A Choosing cheapest B Systematic assessment of supplier capability and quality performance — before and during use C Annual supplier meeting
149	**Continual improvement means?**	A Annual changes B Ongoing activities to enhance ability to fulfil requirements — PDCA, corrective actions, audits C Increasing speed
150	**Quality record is?**	A Planned document B Evidence that a quality activity was carried out — inspection reports, test reports, NCRs C A procedure
SECTION 7 — ISO 9001 & AUDITS (Q151–175)		

Q	QUESTION	OPTIONS (A / B / C)
151	**PDCA stands for?**	A Purchase, Deliver, Check, Accept B Plan, Do, Check, Act — continuous improvement cycle of ISO 9001 C Prepare, Design, Construct, Approve
152	**Seven principles of ISO 9001:2015?**	A Speed, Cost, Schedule, Safety, Quality, Delivery B Customer focus, Leadership, Engagement, Process approach, Improvement, Evidence-based decisions, Relationship management C Plan, Do, Check, Act
153	**Major audit finding means?**	A Minor documentation error B Systematic failure or absence of required QMS element — significant risk to quality C Suggestion for improvement
154	**Observation audit finding is?**	A A major NCR B Potential risk — not yet non-conformance but warrants attention C Acceptable performance
155	**Qualified auditor on Aramco requires?**	A Any quality experience B Lead Auditor certificate (ISO 9001 or equivalent) plus relevant industry experience C Safety Officer approval
156	**Approved vendor list (AVL) is?**	A Safety subcontractors B List of suppliers pre-approved by Aramco — materials must come from AVL sources C Financial suppliers
157	**Design review is?**	A Schedule review B Formal evaluation of design at defined stages — identify and resolve problems before fabrication C Drawing revision review
158	**Purpose of pre-weld inspection?**	A Verify weld complete B Verify all pre-weld requirements met — fit-up, preheat, WPS available, welder qualified C Identify welder
159	**As-built refers to?**	A Original design drawings B Drawings updated to show actual installed configuration including field changes C Drawings issued for construction
160	**Aramco SAIC is?**	A Inspection Certificate B Saudi Aramco Inspection Checklist — standardised checklist for specific inspection activities C Internal Control
161	**Contractor submits Method Statement for welding. QC Inspector must?**	A File without review B Review against WPS, ITP, applicable standards — raise comments if non-compliant before approving C Approve automatically
162	**Filler wire is wrong grade. First action?**	A Use — close enough B Stop welding — quarantine all wire — raise NCR — identify welds already made with this wire C Return wire and continue
163	**Asked to sign report for uninspected work. Must?**	A Sign — PM has authority B Refuse — signing uninspected work is falsification of QC records — gross misconduct C Sign with a note
164	**NCR raised. Contractor disagrees. Correct process?**	A Remove NCR B Contractor formally disputes — Aramco QA reviews — NCR stands until resolution C Stop all work
165	**Hydrostatic test — small weep at flange. Correct action?**	A Tighten bolts under pressure B De-pressurise — identify root cause — repair joint — re-test C Continue — small weep acceptable

Q	QUESTION	OPTIONS (A / B / C)
166	**Materials arrive without documentation. Correct action?**	A Store and request later B Quarantine with HOLD tag — raise NCR — do not use until documentation verified C Use if they look correct
167	**ASME pressure vessel without U stamp nameplate. Correct action?**	A Accept if MTC available B Reject — U stamp nameplate is mandatory per ASME VIII — must not be removed C Apply new stamp
168	**Weld does not appear in weld map. What must happen?**	A Accept if visually correct B Raise NCR — untracked weld — NDT must be performed and weld added to register C Add to map without action
169	**Radiography Permit expires mid-operation. Correct action?**	A Allow continuation B Stop RT immediately — obtain new valid permit before resuming C Let safety officer decide
170	**ITP specifies Hold Point for hydrostatic test. Aramco inspector not available. Test proceed?**	A Yes — waiting too long B No — Hold Point requires Aramco inspector physically present and signed off C Yes if contractor QC witnesses
171	**Weld repair made. What NDT is mandatory?**	A No additional NDT B Same NDT originally specified — re-inspect repair to full original acceptance standard C Visual only
172	**Maximum repair attempts on single weld before rejection?**	A No limit B Typically two — third failure requires weld cut-out and re-weld per Aramco requirements C One only
173	**Pipe with mill scale on internal bore before installation. Must?**	A Accept — mill scale is normal B Raise NCR — verify internal cleanliness per specification before installation C Clean it and continue
174	**Spool with incorrect material grade found at final inspection. Correct action?**	A Accept — spool is fabricated B Raise NCR — REJECT — replace with correct material C Apply concession if similar
175	**Stainless steel pipe installed without PMI. Must?**	A Accept if MTC available B Stop work — raise NCR — PMI must be performed before pipe is accepted C Perform PMI yourself
SECTION 8 — SCENARIO & MIXED (Q176–200)		
176	**DFT — 12 out of 100 readings below minimum. SSPC-PA2 requires 90%+. Coating?**	A Passes — 88% is close B Fails — 88% below required 90% — additional coats required and re-inspection C Passes if average above minimum
177	**10 welds, 3 defective. Repair rate 30%. What happens?**	A Accept — defects repaired B Raise NCR — 30% far above 5% trigger — welder re-qualification required C Continue without action
178	**Previous records found falsified. Must?**	A Ignore — not my problem B Report immediately to QC Manager and Aramco representative — serious integrity matter C Correct quietly
179	**DFT below minimum in critical area. Must?**	A Ignore if only one reading B Document, raise NCR, require additional coat, re-inspect C Average readings across area
180	**QC Inspector action at project close-out?**	A Attend completion event B Ensure all records complete, NCRs closed, punch-list resolved, QC dossier compiled C Submit final invoice

Q	QUESTION	OPTIONS (A / B / C)
181	**What is a quality hold?**	A Scheduled meeting B Formal stop on work or shipment pending quality verification or NCR resolution C Type of inspection point
182	**Purpose of pre-shipment inspection?**	A Check packaging only B Verify product meets all specifications before shipment — dimensional, visual, documentation C Confirm delivery address
183	**What is a receiving inspection?**	A End of project inspection B Inspection of materials and equipment upon arrival at site — before storage or installation C Inspection of finished work
184	**Conformance to specification means?**	A Product looks correct B Product meets every defined requirement — dimensions, material, workmanship, testing C Product within budget
185	**Difference between non-conformance and defect?**	A Same thing B Non-conformance: failure to meet any requirement; Defect: specific physical imperfection in the product C Defect is less serious
186	**Quality surveillance visit is?**	A Social visit B Unannounced or scheduled visit to verify contractor QC performance in the field C Financial audit
187	**Objective evidence means?**	A Inspector's opinion B Verifiable documented proof that a requirement has been met — data, records, test results C Verbal confirmation
188	**What is a weld map?**	A Map of site B Drawing showing locations, weld numbers, welder ID, and NDT results for all welds — traceability document C Welding sequence chart
189	**What is a heat treatment chart?**	A Equipment log B Recorded time-temperature profile for PWHT — permanent QC record proving PWHT was performed correctly C Weather record
190	**QC Inspector must NOT do which of the following?**	A Raise an NCR B Issue a Work Permit — that is the Permit Issuer's role C Conduct dimensional inspection
191	**Primary purpose of an ITP?**	A Satisfy client B Provide structured plan identifying what quality activities must be performed, by whom, and when C Satisfy audit
192	**Standard governing coating DFT measurement?**	A ASME IX B SSPC-PA2 C API 510
193	**Standard governing above-ground storage tank inspection?**	A API 510 B API 653 C API 570
194	**Standard governing in-service piping inspection?**	A API 510 B API 570 C ASME IX
195	**Purpose of quality management system?**	A Reduce cost only B Consistently provide products and services that meet customer and regulatory requirements C Track schedule
196	**Pareto 80/20 rule in quality?**	A 80% of staff produce 20% of defects

Q	QUESTION	OPTIONS (A / B / C)
		B 80% of problems come from 20% of causes — focus corrective action on the vital few C 80% inspection is sufficient
197	**Control chart used for?**	A Track project milestones B Monitor quality metric over time — identify when process is going out of control C Audit scheduling
198	**Purpose of calibration programme?**	A Regulatory requirement only B Ensure measurement equipment provides accurate reliable results traceable to national standards C Reduce equipment cost
199	**Leading indicator in quality management?**	A NCR rate B Proactive measure — e.g. ITP compliance rate, hold point adherence, training completion C Repair rate
200	**Target score before sitting real Aramco QA/QC exam?**	A 150+ B 180+ (90%) C 160+

ANSWER KEY

QA/QC Inspector — Saudi Aramco Exam Preparation — 200 Questions

Q1–20	Q21–40	Q41–60	Q61–80	Q81–100	Q101–120	Q121–140	Q141–160	Q161–180	Q181–200
1 B	21 B	41 B	61 B	81 B	101 B	121 B	141 B	161 B	181 B
2 B	22 B	42 B	62 B	82 B	102 B	122 B	142 B	162 B	182 B
3 B	23 B	43 B	63 B	83 B	103 B	123 B	143 B	163 B	183 B
4 B	24 B	44 B	64 B	84 B	104 B	124 B	144 B	164 B	184 B
5 B	25 B	45 B	65 B	85 B	105 A	125 B	145 B	165 B	185 B
6 B	26 B	46 B	66 B	86 B	106 B	126 B	146 B	166 B	186 B
7 B	27 B	47 B	67 B	87 B	107 B	127 B	147 B	167 B	187 B
8 B	28 B	48 B	68 B	88 B	108 B	128 B	148 B	168 B	188 B
9 B	29 B	49 B	69 B	89 B	109 B	129 B	149 B	169 B	189 B
10 B	30 B	50 B	70 B	90 B	110 B	130 B	150 B	170 B	190 B
11 B	31 B	51 B	71 B	91 B	111 B	131 B	151 B	171 B	191 B
12 B	32 B	52 B	72 B	92 B	112 B	132 B	152 B	172 B	192 B
13 B	33 B	53 B	73 B	93 B	113 B	133 B	153 B	173 B	193 B
14 B	34 B	54 B	74 B	94 B	114 B	134 B	154 B	174 B	194 B
15 B	35 B	55 B	75 B	95 B	115 B	135 B	155 B	175 B	195 B
16 B	36 B	56 B	76 B	96 B	116 B	136 B	156 B	176 B	196 B
17 B	37 B	57 B	77 B	97 B	117 B	137 B	157 B	177 B	197 B
18 B	38 B	58 B	78 B	98 B	118 B	138 B	158 B	178 B	198 B
19 B	39 B	59 B	79 B	99 B	119 B	139 B	159 B	179 B	199 B
20 B	40 B	60 B	80 B	100 B	120 B	140 B	160 B	180 B	200 B

Your Score	Result	Action Required
180–200 / 200	Excellent	Ready for the Aramco QA/QC Inspector exam. Review any incorrect answers from weak topic areas.
160–179 / 200	Good	Review weak sections and re-attempt those question banks before sitting the real exam.
140–159 / 200	Needs Work	Re-study all sections scored below 70% before reattempting.
Below 140 / 200	Not Ready	Complete full re-study of all parts before attempting the question bank again.

Short Form	Full Form
QA	Quality Assurance
QC	Quality Control
QA/QC	Quality Assurance / Quality Control
QCE	Quality Control Engineer
QCI	Quality Control Inspector
QCS	Quality Control Supervisor
QCM	Quality Control Manager
QAM	Quality Assurance Manager
TPI	Third Party Inspector
TPI	Third Party Inspection
ICV	In-Country Value (Aramco requirement)
CWI	Certified Welding Inspector
CSWIP	Certification Scheme for Welding and Inspection Personnel
PCN	Personnel Certification in Non-Destructive Testing
ASNT	American Society for Nondestructive Testing
AWS	American Welding Society

SECTION 2 — DOCUMENTS & PLANS

Short Form	Full Form
ITP	Inspection and Test Plan
QCP	Quality Control Plan
QMP	Quality Management Plan
QMS	Quality Management System

Short Form	Full Form
WPS	Welding Procedure Specification
PQR	Procedure Qualification Record
WQT	Welder Qualification Test
WPQR	Welding Procedure Qualification Record
MTC	Mill Test Certificate
MTR	Material Test Report
COC	Certificate of Conformance
COC	Certificate of Compliance
FAT	Factory Acceptance Test
SAT	Site Acceptance Test
ITR	Inspection and Test Record
SATIP	Saudi Aramco Template Inspection Procedure
SAIC	Saudi Aramco Inspection Checklist
RFI	Request for Inspection
NCR	Non-Conformance Report
CAR	Corrective Action Request
CAPA	Corrective and Preventive Action
MRB	Material Review Board
TQ	Technical Query
RFI	Request for Information
MDR	Material Data Report
DDR	Design Data Report
QCR	Quality Control Record
DCI	Document Control Index
FAI	First Article Inspection
PIM	Pre-Inspection Meeting
PIC	Pre-Inspection Checklist

SECTION 3 — INSPECTION & TESTING

Short Form	Full Form
H	Hold Point
W	Witness Point
R	Review Point

Short Form	Full Form
M	Monitor
VT	Visual Testing
PT	Penetrant Testing
LPT	Liquid Penetrant Testing
MT	Magnetic Particle Testing
MPI	Magnetic Particle Inspection
RT	Radiographic Testing
UT	Ultrasonic Testing
HT	Hardness Testing
TOFD	Time of Flight Diffraction
PAUT	Phased Array Ultrasonic Testing
AUT	Automated Ultrasonic Testing
ET	Eddy Current Testing
NDT	Non-Destructive Testing
NDE	Non-Destructive Examination
DFT	Dry Film Thickness
WFT	Wet Film Thickness
PMI	Positive Material Identification
XRF	X-Ray Fluorescence
OES	Optical Emission Spectrometry
HIC	Hydrogen Induced Cracking
SOHIC	Stress Oriented Hydrogen Induced Cracking
SSC	Sulphide Stress Cracking
HAZ	Heat Affected Zone
CJP	Complete Joint Penetration
PJP	Partial Joint Penetration

SECTION 4 — COATINGS & SURFACE

Short Form	Full Form
DFT	Dry Film Thickness
WFT	Wet Film Thickness
NDFT	Nominal Dry Film Thickness
MDFT	Minimum Dry Film Thickness

Short Form	Full Form
SSPC	Society for Protective Coatings
NACE	National Association of Corrosion Engineers
AMPP	Association for Materials Protection and Performance
SP	Surface Preparation
Sa	Blast Cleaning Grade (Swedish Standard)
St	Hand / Power Tool Cleaning Grade
AARH	Average Arithmetic Roughness Height
Rz	Mean Roughness Depth
VOC	Volatile Organic Compound
SDS	Safety Data Sheet
MSDS	Material Safety Data Sheet
WFT	Wet Film Thickness

SECTION 5 — WELDING

Short Form	Full Form
WPS	Welding Procedure Specification
PQR	Procedure Qualification Record
WQT	Welder Qualification Test
WQR	Welder Qualification Record
PWHT	Post Weld Heat Treatment
PREHEAT	Pre-Heat Temperature
IPT	Interpass Temperature
CE	Carbon Equivalent
HAZ	Heat Affected Zone
HI	Heat Input
CTOD	Crack Tip Opening Displacement
CVN	Charpy V-Notch (impact test)
UTS	Ultimate Tensile Strength
YS	Yield Strength
RA	Reduction of Area
EL	Elongation
SMAW	Shielded Metal Arc Welding
GTAW	Gas Tungsten Arc Welding

Short Form	Full Form
GMAW	Gas Metal Arc Welding
FCAW	Flux Cored Arc Welding
SAW	Submerged Arc Welding
PAW	Plasma Arc Welding
OFW	Oxyfuel Welding
EGW	Electrogas Welding
ESW	Electroslag Welding
TIG	Tungsten Inert Gas Welding
MIG	Metal Inert Gas Welding
MAG	Metal Active Gas Welding

SECTION 6 — PIPING & PRESSURE

Short Form	Full Form
OD	Outside Diameter
ID	Inside Diameter
WT	Wall Thickness
CA	Corrosion Allowance
t_min	Minimum Required Thickness
CR	Corrosion Rate
RL	Remaining Life
MFL	Magnetic Flux Leakage
RTJ	Ring Type Joint
RF	Raised Face
FF	Flat Face
BW	Butt Weld
SW	Socket Weld
THD	Threaded
FW	Fillet Weld
CW	Complete Weld
NPS	Nominal Pipe Size
DN	Diameter Nominal
SCH	Schedule (pipe wall thickness class)
SMLS	Seamless

Short Form	Full Form
ERW	Electric Resistance Welded
DSAW	Double Submerged Arc Welded
P&ID	Piping and Instrumentation Diagram
ISO	Isometric Drawing
MTO	Material Take Off

SECTION 7 — STANDARDS & ORGANISATIONS

Short Form	Full Form
ISO	International Organisation for Standardisation
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
BSI	British Standards Institution
DIN	Deutsches Institut für Normung (German Standards)
EN	European Norm
NFPA	National Fire Protection Association
NACE	National Association of Corrosion Engineers
SSPC	Society for Protective Coatings
SAES	Saudi Aramco Engineering Standard
SAMSS	Saudi Aramco Materials System Specification
GI	General Instruction (Saudi Aramco)
SAIC	Saudi Aramco Inspection Checklist
SATIP	Saudi Aramco Template Inspection Procedure
IEC	International Electrotechnical Commission
ANSI	American National Standards Institute

SECTION 8 — QUALITY SYSTEM

Short Form	Full Form
QMS	Quality Management System
IMS	Integrated Management System
EMS	Environmental Management System
OHSMS	Occupational Health and Safety Management System
PDCA	Plan Do Check Act

Short Form	Full Form
KPI	Key Performance Indicator
SLA	Service Level Agreement
AVL	Approved Vendor List
AML	Approved Manufacturer List
DVR	Design Verification Review
FCR	Field Change Request
MoC	Management of Change
DCC	Document Control Centre
RFI	Request for Inspection
RFC	Request for Change
DAR	Deviation and Approval Request