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38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

ARIZONA REGISTRAR OF CONTRACTORS

X65XZW4L

AZ R-54 Water Conditioning Equipment

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for ARIZONA REGISTRAR OF CONTRACTORS X65XZW4L , 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, X65XZW4L
- the question number
- the email address on your order

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

QUESTION 1

SINGLE CHOICE

What is the primary purpose of a water softener in a residential application?

- ☐ A To remove suspended solids from water
- ☒ B To reduce the hardness of water by exchanging calcium and magnesium ions
- ☐ C To kill bacteria and viruses in the water supply
- ☐ D To increase the pH of acidic water

ANSWER B

WHY A water softener's primary purpose is to reduce hardness by exchanging calcium and magnesium ions for sodium or potassium ions using an ion-exchange process. Removing suspended solids requires filtration, disinfection is a separate process, and pH adjustment is the role of neutralizers — not softeners.

QUESTION 2

SINGLE CHOICE

In a typical ion-exchange water softener, what is the function of the brine tank?

- ☐ A To store the treated softened water before use
- ☒ B To hold the salt (sodium or potassium chloride) used for regenerating the resin
- ☐ C To filter out sediment before water enters the resin tank
- ☐ D To discharge wastewater from the system

ANSWER B

WHY The brine tank holds the salt solution (sodium or potassium chloride) that is drawn into the resin tank during the regeneration cycle to restore the ion-exchange resin's capacity. It does not store treated water, filter sediment, or discharge wastewater — those are functions of other components.

QUESTION 3 SINGLE CHOICE

Which of the following minerals is primarily responsible for causing 'hard' water?

- ☐ A Sodium and potassium
- ☐ B Iron and manganese
- ☒ C Calcium and magnesium
- ☐ D Chlorine and fluoride

ANSWER C

WHY Hard water is caused primarily by dissolved calcium and magnesium ions. While iron and manganese can cause staining and other issues, hardness is defined by calcium and magnesium concentration, typically measured in grains per gallon (gpg) or milligrams per liter (mg/L).

QUESTION 4 SINGLE CHOICE

When installing a residential water softener, which location requirement is most important for proper operation and code compliance?

- ☐ A It must be installed on a wooden platform elevated above the floor
- ☒ B It must be installed on a solid, level surface with access to a drain for the discharge and a power source for control valves
- ☐ C It must be installed outdoors in a covered enclosure
- ☐ D It must be installed within 5 feet of the water heater

ANSWER B

WHY A water softener requires a solid, level surface, a drain for regeneration discharge, and a power source for the control valve head. Outdoor installation is not standard for most residential units, no wooden platform is required, and proximity to the water heater is not a code requirement (it can even be problematic due to heat exposure).

QUESTION 5

SINGLE CHOICE

According to standard plumbing practice for water softener installation, an installation should include which of the following?

- ☐ A A direct connection to the potable water supply with no bypass or shut-off valves
- ☒ B A bypass valve, shut-off valves, and a means to discharge brine/wastewater indirectly to a sanitary drain with an air gap
- ☐ C A connection only to the cold water line feeding the water heater
- ☐ D A direct hard-piped connection to the building drain without an air gap

ANSWER B

WHY Standard practice requires bypass valves (to allow water service during maintenance), shut-off valves for isolation, and an indirect drain connection with an air gap to prevent cross-contamination of the potable supply. Direct connections without bypass or air gaps violate plumbing code and create contamination risks.

QUESTION 6

SINGLE CHOICE

How often should the salt level in a brine tank typically be checked and replenished in a normally used residential softener?

- ☐ A Only when the softener stops producing softened water
- ☐ B Annually during a scheduled service visit
- ☒ C Monthly or as needed, keeping the tank at least one-third full of salt at all times
- ☐ D Salt does not need to be added once the system is installed

ANSWER C

WHY Salt should be checked monthly and replenished as needed, maintaining at least one-third to one-half full. Letting the salt run out allows the resin to become exhausted and hard water will pass through. Salt is a consumable that must be replaced regularly, not a one-time fill.

QUESTION 7 SINGLE CHOICE

What is the typical rejection rate (percentage of contaminants removed) for a properly functioning residential reverse osmosis (RO) system?

- ☐ A 10–25%
- ☐ B 50–60%
- ☐ C 75–80%
- ☒ D 95–99%

ANSWER D

WHY A properly functioning residential RO system typically rejects 95–99% of dissolved contaminants (TDS), depending on membrane condition, water pressure, and temperature. Lower percentages (10–60%) would indicate a failed membrane, fouled system, or that the system is not actually an RO unit.

QUESTION 8 SINGLE CHOICE

A customer reports that their water has a reddish-brown stain in sinks and toilets. Which water condition is most likely the cause?

- ☐ A Hard water (calcium and magnesium)
- ☐ B Acidic water (low pH)
- ☒ C Iron and/or manganese content
- ☐ D Excessive chlorine residual

ANSWER C

WHY Reddish-brown staining is the classic indicator of iron in the water supply; manganese can produce similar but darker (black-brown) staining. Hard water causes scale buildup (white), acidic water causes blue-green staining from copper corrosion, and chlorine does not cause staining.

QUESTION 9

SINGLE CHOICE

In an ion-exchange water softener, which ion is typically exchanged for the hardness-causing calcium and magnesium ions as the service water passes through the resin bed?

- ☒ **A** Sodium
- ☐ **B** Chloride
- ☐ **C** Potassium
- ☐ **D** Hydrogen

ANSWER A

WHY Conventional ion-exchange softeners use a cation resin charged with sodium (or sometimes potassium) ions. As hard water flows through the resin, the divalent calcium and magnesium ions are exchanged for the monovalent sodium ions, producing softened water. Chloride is the anion paired with sodium in the brine and is not exchanged onto the resin.