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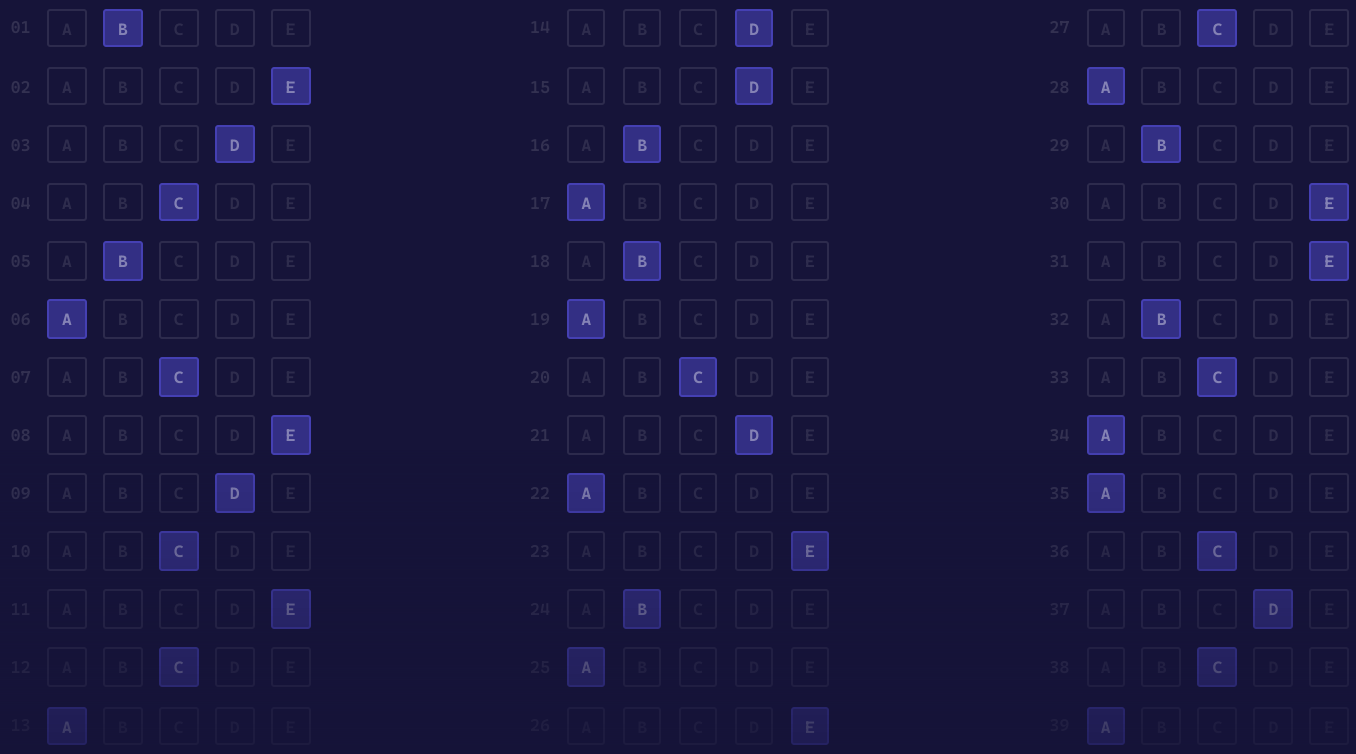

PRACTICE QUESTIONS

Colorado Certified Water Professionals

X65XZWG8

Colorado Water Distribution System Operator Class 2

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for Colorado Certified Water Professionals `X65XZWG8`, 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, `X65XZWG8`
- 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 MULTIPLE CHOICE

Which of the following factors directly affect the friction head loss in a water distribution main? (Choose two.)

- **A** **Pipe diameter**
- **B** Water temperature
- **C** **Flow velocity through the pipe**
- **D** Color of the pipe exterior coating

ANSWER **A** · **C**

WHY Friction head loss in a water main is governed by the Darcy–Weisbach or Hazen–Williams equations, which depend primarily on pipe diameter (internal) and flow velocity (or flow rate). Water temperature has only a minor effect on viscosity and is generally not used as a primary variable in distribution-system head-loss calculations. Pipe exterior coating color has no hydraulic effect on friction losses.

QUESTION 2 MULTIPLE CHOICE

A distribution operator is evaluating ways to reduce water hammer in a transmission main. Which two of the following measures are appropriate controls? (Choose two.)

- **A** **Install slow-closing control valves**
- **B** Operate pumps against closed discharge valves
- **C** **Use surge relief valves or air-vacuum valves at critical points**
- **D** Increase the rate at which hydrants are opened for flushing

ANSWER **A** · **C**

WHY Water hammer (hydraulic transient) is controlled by reducing the rate of change of velocity. Slow-closing valves and surge-relief/air-vacuum valves both moderate pressure surges. Operating pumps against closed discharge valves and rapidly opening hydrants both increase the magnitude of the transient and should be avoided.

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QUESTION 3 TRUE FALSE

A reduced-pressure zone (RPZ) backflow preventer must be tested annually by a certified cross-connection control technician to remain in compliance with Colorado cross-connection control requirements.

A **True**

B False

ANSWER **A**

WHY RPZ backflow preventers contain internal seals, springs, and relief valves that can wear or fouled over time. Colorado, like most jurisdictions, requires these assemblies to be tested at least annually by a certified technician, with test reports submitted to the water utility, to ensure they continue to protect the potable supply from backflow events.

QUESTION 4 SINGLE CHOICE

A water distribution operator measures a free chlorine residual of 0.05 mg/L at a distant point in the distribution system. The required minimum residual is 0.2 mg/L. What is the most appropriate corrective action?

A Immediately shut down the affected pipeline segment

B **Increase the chlorine dosage at the treatment plant and recheck residuals throughout the affected area**

C Flush the main until the residual rises above 0.2 mg/L

D Add orthophosphate to the finished water

ANSWER **B**

WHY A residual below the minimum typically indicates either excessive demand or loss of disinfectant in the system. The proper corrective action is to boost the chlorine dose at the source and verify residuals throughout the affected zone. Shutting down the main, flushing (which would waste treated water and reduce residual further), and adding orthophosphate (a corrosion inhibitor, not a disinfectant) are not appropriate responses.

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QUESTION 5 SINGLE CHOICE

Customers served by a high-elevation pressure zone are repeatedly complaining of milky-white water from their taps. The water clears after running for a minute or two. What is the most likely cause?

A A main break is allowing soil and sediment into the distribution system

B Excessive chlorine residual is reacting with natural organic matter

C Air is being introduced into the water, creating tiny bubbles that scatter light

D Hardness is precipitating out of solution as calcium carbonate

ANSWER C

WHY Milky water that clears upon standing is the classic presentation of entrained air (microbubbles). Common causes include air entrained at the source, leaks on the suction side of pumps, or release of dissolved air due to pressure/temperature changes. A main break would introduce sediment that does not clear quickly, chlorine/organic reactions cause taste/odor, and calcium precipitation (red-brown or white particles) does not behave like dispersible bubbles.

QUESTION 6 SINGLE CHOICE

Which type of valve is most appropriate for isolating a section of water main during routine maintenance and repair work?

A Pressure-reducing valve (PRV)

B Gate valve

C Altitude valve

D Swing check valve

ANSWER B

WHY Gate valves are the standard isolation valve in water distribution systems because they provide a full, unobstructed flow path when open and a tight shutoff when closed. PRVs regulate downstream pressure, altitude valves control tank filling — neither is used for isolation. Swing check valves prevent backflow but do not provide reliable positive shutoff for isolation.

QUESTION 7 SINGLE CHOICE

What is the primary operational purpose of an altitude valve on an elevated storage tank?

A To regulate the pressure downstream of the tank

B To automatically open and close to control tank filling based on water level

C To prevent backflow into the tank from the distribution system

D To release air from the tank during filling

ANSWER B

WHY An altitude valve is a float- or pilot-operated valve installed on the tank inlet/outlet that opens when the tank level drops to a designated low setpoint and closes when the level reaches a designated high setpoint. This keeps the tank in service without operator intervention. Pressure regulation, backflow prevention, and air release are functions of different devices.

QUESTION 8 SINGLE CHOICE

An operator must enter a confined space such as a valve vault that has not been permit-required. Which condition must be verified before entry?

A The vault must be filled with potable water to displace hazardous gases

B The space must be tested for oxygen content and hazardous atmospheres prior to entry

C A fire hydrant must be flowing water within 50 feet of the vault

D The vault must be illuminated with a halogen work light

ANSWER B

WHY OSHA confined-space entry rules require atmospheric testing (oxygen, flammables, toxics) before and during entry. A vault with potable water filling it would create a drowning hazard; proximity to a flowing hydrant does not address atmospheric hazards; and halogen lights create ignition risk in flammable atmospheres. Only atmospheric monitoring directly addresses the principal hazards of confined-space entry.

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QUESTION 9 SINGLE CHOICE

A commercial customer is installing a fire sprinkler line that will be connected to the potable water system. Which type of backflow preventer is typically required at the service connection to protect the public water main?

A Atmospheric vacuum breaker (AVB)

B **Reduced pressure zone (RPZ) backflow preventer**

C Dual check valve

D Hose bibb vacuum breaker

ANSWER **B**

WHY Fire sprinkler systems are classified as a high hazard because stagnant water and chemical additives (corrosion inhibitors, antifreeze) can be drawn back into the potable supply. Colorado and model plumbing codes typically require an RPZ backflow preventer at the service connection for high-hazard applications. AVBs and hose-bibb vacuum breakers are only suitable for low-hazard, non-continuous-pressure installations. A dual check valve is for low-hazard residential service only and would not be acceptable here.

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