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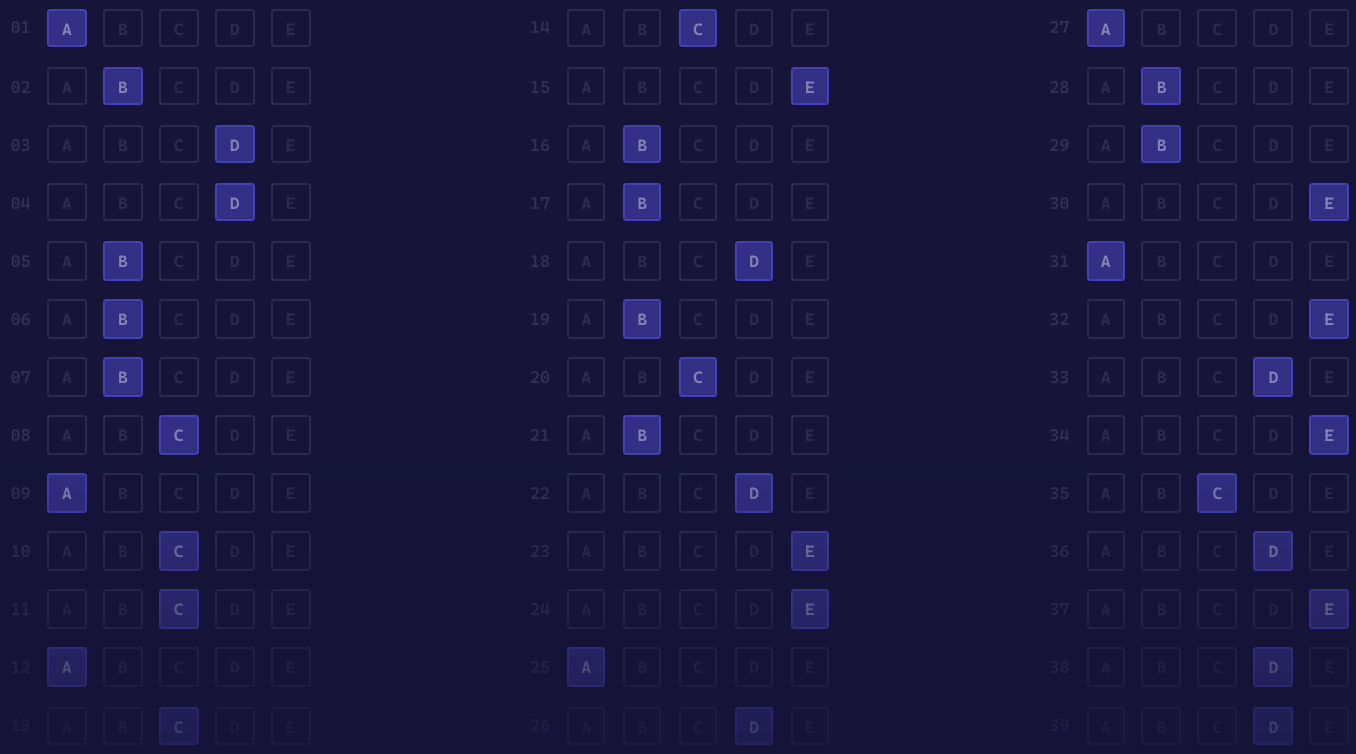

PRACTICE QUESTIONS

Alberta Water and Wastewater Operator Certification Program

TYME99CC

Alberta Water Distribution Operator Level 4

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for Alberta Water and Wastewater Operator Certification Program `TYME99CC`, 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, `TYME99CC`
- 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

Two identical centrifugal pumps are operated in parallel in a water distribution pump station. Compared to operating a single pump at the same total flow rate, the parallel arrangement generally results in which change to the operating point?

A Lower total head at the same flow compared to a single pump

B Higher total head at the same flow compared to a single pump

C Exactly double the head at the same flow compared to a single pump

D No change in either head or flow for the same pump speed

ANSWER B

WHY For pumps with a rising head–capacity curve, paralleling pumps adds flow at a given head — the combined curve lies above the single-pump curve, producing a higher head at the same total flow rate than a single pump alone. Serial/series operation would increase head at the same flow, but parallel pumps increase head over single-pump operation at equal flow.

QUESTION 2 SINGLE CHOICE

An Alberta distribution system is experiencing elevated lead concentrations at customer taps. Which corrosion-control strategy is most consistent with industry-standard practice for reducing lead leaching from service lines and plumbing?

A Lower the distribution system pH to increase water aggressiveness

B Increase free chlorine residual to maximum allowable levels

C Optimize corrosion control by adjusting pH and adding an orthophosphate inhibitor

D Replace every service connection immediately with no other action

ANSWER C

WHY Lead release is controlled by forming a protective passivating film on interior pipe surfaces, which is achieved by raising pH (and/or adjusting alkalinity/calcium hardness) and/or adding orthophosphate inhibitors. Lowering pH (A) makes water more aggressive and worsens corrosion. Chlorine residual adjustments (B) and full service-line replacement (D) are not stand-alone corrosion-control treatments.

QUESTION 3 SINGLE CHOICE

A Level 4 operator is establishing a distribution-system valve exercising program. What is the principal operational reason for periodically opening and closing mainline valves under normal pressure?

A **To verify that the valve can be located and operated, and to prevent seizing of internal components**

B To increase hydraulic capacity of the main

C To reduce disinfectant demand in the distribution system

D To raise the system pressure rating above its design limit

ANSWER **A**

WHY Periodic valve exercising confirms operability for emergency isolation and prevents internal corrosion/seizing of the gate or disc. It does not increase hydraulic capacity (B), reduce disinfectant demand (C), or change the pressure rating (D).

QUESTION 4 SINGLE CHOICE

A hospital's boiler makeup water line is connected directly to the potable water main without an air gap or backflow preventer. Under the Alberta Environmental Public Health Standards and the Model Code guidelines, this configuration represents what?

A An approved cross-connection

B **A cross-connection requiring an appropriate backflow preventer or air gap**

C A condition that is acceptable if the boiler temperature is below 60 °C

D A condition that is acceptable if the boiler water pH is neutral

ANSWER **B**

WHY A direct connection to a boiler — a substance-handling system — is a high-hazard cross-connection. It must be protected by an air gap or an appropriate testable backflow preventer (e.g., RP or double-check valve assembly per hazard). Boiler temperature (C) or pH (D) do not eliminate the cross-connection hazard, and it is not an approved connection (A).

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QUESTION 5 SINGLE CHOICE

The recommended minimum free chlorine residual in an Alberta distribution system, measured throughout the system, is typically maintained at which target level at all points of the distribution network?

A 0.0 mg/L — only the presence of any chlorine matters

B **A detectable residual maintained at all times, commonly targeted at not less than 0.2 mg/L free chlorine at the system extremities**

C 5.0 mg/L at every point in the system

D 10 mg/L at every point in the system

ANSWER **B**

WHY Alberta Environmental Public Health Standards and standard AWWA guidance require a detectable free chlorine residual throughout the distribution system, with a commonly used minimum target of 0.2 mg/L at the far ends of the system. Levels of 5 or 10 mg/L (C, D) are excessive and not required, and 0.0 mg/L (A) is not acceptable.

QUESTION 6 SINGLE CHOICE

Compared with conventional dead-end flushing, what is the principal advantage of unidirectional flushing (UDF) in a water distribution system?

A UDF uses less water to clean the same pipe length

B **UDF achieves higher targeted flushing velocities on selected pipe segments by closing valves to control flow direction**

C UDF eliminates the need for any flushing at all

D UDF reduces system pressure to below atmospheric

ANSWER **B**

WHY Unidirectional flushing isolates pipe segments using closed valves so that flush water flows from a clean source in one direction through the targeted pipe, achieving higher scouring velocities and more effective sediment removal than conventional dead-end flushing. It does not eliminate flushing (C) nor reduce pressure below atmospheric (D), and typically uses more water, not less (A).

QUESTION 7 SINGLE CHOICE

In the Hazen-Williams headloss equation used for distribution system analysis, what does the C-factor represent, and how does it change as a water main ages?

A **A velocity coefficient that decreases as tuberculation, scaling, or biofilm roughen the pipe wall**

B A pressure-rating coefficient that increases as the pipe ages

C A temperature coefficient that does not change with pipe condition

D A pump-efficiency coefficient independent of pipe condition

ANSWER **A**

WHY The Hazen-Williams C-factor represents the internal roughness of the pipe. New pipes have high C-values (smooth interior); as tuberculation, scale, corrosion products, or biofilm accumulate, C decreases, raising headloss at any given flow. C is not a pressure rating (B), temperature coefficient (C), or pump-efficiency term (D).

QUESTION 8 SINGLE CHOICE

Under Alberta's drinking-water framework, a Level 4 water distribution operator has certain duties regarding water quality and system events. Which of the following best describes the operator's responsibility when a confirmed exceedance of an aesthetic or health-related parameter occurs in the distribution system?

A **Notify the appropriate regulator/owner as required and take corrective action consistent with operating approval and Alberta Environmental Public Health Standards**

B Wait for the next scheduled regulatory inspection before reporting

C Take no action unless the exceedance continues for more than 30 days

D Only act if the exceedance causes a customer complaint

ANSWER **A**

WHY Operators are required to act on confirmed parameter exceedances by notifying the appropriate authority (the owner and the relevant regulator, e.g., Alberta Health/Environment as required) and taking corrective action under the system's operating approval. Reporting cannot wait for the next inspection (B), is not delayed 30 days (C), and is not contingent on complaints (D).

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QUESTION 9 MULTIPLE CHOICE

Two identical centrifugal pumps in a water distribution pump station are operated in series rather than in parallel. Which two statements accurately describe the operating result compared with parallel operation? (Choose two.)

A **The combined pump curve approximately doubles the head (TDH) available at a given flow rate.**

B The combined pump curve approximately doubles the flow capacity at a given head.

C System flow is restricted to the capacity of a single pump, since neither pump can boost more than the other delivers.

D **Series pumping is typically used where high discharge pressures are required, such as boosting flow to an elevated zone or through a long transmission main.**

E Series pumping is typically used where a small increase in flow capacity is required but the available head is already adequate.

ANSWER **A · D**

WHY In series, the heads of the pumps add at any given flow, so the combined curve roughly doubles TDH at the same flow — this is useful when high discharge pressure is needed, for example to push water to an elevated pressure zone or through a high-friction transmission main. Parallel operation, by contrast, adds flow capacity at a given head. Options B, C, and E describe parallel pumping, not series.

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