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

PRACTICE QUESTIONS

Alberta Water and Wastewater Operator Certification Program

BM Y5N78Y

Alberta Water Treatment Operator Level 2

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Alberta Water and Wastewater Operator Certification Program BMY5N78Y , 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, BMY5N78Y
- the question number
- the email address on your order

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

QUESTION 1

SINGLE CHOICE

A water treatment operator measures a free chlorine residual of 0.8 mg/L at the clearwell and a combined chlorine residual of 0.2 mg/L leaving the plant. Which chlorine residual value would meet the Alberta Environment and Protected Areas operational guideline for free chlorine leaving the disinfection point and entering the distribution system?

- ☐ A 0.1 mg/L free chlorine
- ☐ B 0.3 mg/L free chlorine
- ☒ C 0.6 mg/L free chlorine
- ☐ D 3.0 mg/L free chlorine

ANSWER C

WHY Alberta's drinking water operational guidelines require a free chlorine residual of at least 0.5 mg/L (commonly maintained in the 0.5–1.0 mg/L range) leaving the disinfection contact point and entering the distribution system. Option A and B fall below this threshold, while 3.0 mg/L is unnecessarily high, can produce taste and odour complaints, and is not the operational target.

QUESTION 2

SINGLE CHOICE

Which of the following jar test results most strongly indicates that a coagulant dose is inadequate for the current raw water conditions?

- ☐ A Turbidity of 1.0 NTU remaining after 30 minutes of settling, with a clearly defined floc blanket
- ☐ B Formed a dense, rapidly settling pin floc at the optimum dose
- ☐ C Very small, slow-forming floc particles with poor settling and high residual turbidity
- ☒ D Effluent turbidity matches the raw water turbidity, indicating that no floc formed at all

ANSWER D

WHY If the jar test effluent turbidity is essentially equal to the raw water turbidity, no floc has formed — a clear sign the coagulant dose is inadequate (or that pH is out of range). Option C describes under-dosing, but the question asks for the result that *most strongly* indicates inadequate dosing; an effluent equal to raw water shows essentially no coagulation occurred at all, while small, slow floc at least indicates partial dose response.

QUESTION 3

SINGLE CHOICE

During a routine filter run, the head loss across a rapid sand filter rises rapidly and the effluent turbidity increases above acceptable limits while the run time is much shorter than normal. The most appropriate first operational response is to:

- ☐ A Increase the filter loading rate to push more water through the bed
- ☒ B Backwash the filter and inspect the surface for mud-ball formation or media loss
- ☐ C Raise the chlorine dose to compensate for the turbidity breakthrough
- ☐ D Reduce coagulant feed to slow the rate of head loss accumulation

ANSWER B

WHY Rapid head loss increase combined with turbidity breakthrough and short run time is a classic indicator of a fouled or damaged filter media (mud balls, excessive floc carryover, or media loss). Backwashing restores filter performance, and post-backwash inspection helps identify and address the underlying cause. Increasing the loading rate worsens breakthrough, and changing chemical doses without diagnosing the filter ignores the true problem.

QUESTION 4

SINGLE CHOICE

Why is the source water assessment and intake protection step important in producing safe drinking water under Alberta's multi-barrier approach?

- ☐ A It eliminates the need for downstream treatment processes
- ☒ B It establishes the baseline raw water quality and identifies contaminants the treatment process must be designed to handle
- ☐ C It is required only for groundwater sources, not surface water sources
- ☐ D It replaces routine monitoring of treated water quality in the distribution system

ANSWER B

WHY Source water assessment is the first barrier in the multi-barrier approach. It characterizes the raw water (microbial, chemical, and physical quality) and identifies risks so that the treatment train can be properly designed and operated. It does not eliminate downstream treatment, is required for both surface and groundwater sources (with additional focus on groundwater under the Groundwater Directive), and does not replace distribution system monitoring.

QUESTION 5

SINGLE CHOICE

A water utility receives several customer reports of 'black water' or discoloured water from their taps in a particular zone of the distribution system after a watermain repair. The most likely operational cause and best response is:

- ☐ **A** A chlorine residual failure throughout the zone; increase the chlorinator dose at the plant
- ☒ **B** Mobilization of iron and manganese sediment in the main due to flow disturbances; flush the affected hydrants until water runs clear
- ☐ **C** Cross-connection with a private well back-feeding the main; close all service connections and boil-water the entire system
- ☐ **D** Algal bloom in the source water; switch to the alternate raw water intake

ANSWER B

WHY Discoloured water following a main repair or flow change is typically caused by the resuspension of iron/manganese scale and sediment that has accumulated on the pipe wall. Unidirectional flushing of the affected hydrants until the water clears is the standard operational response. The other options describe events that would have different, broader symptoms and different response actions.

QUESTION 6

SINGLE CHOICE

An operator wants to maintain a corrosion-control target pH in the finished water to minimize lead/copper release from household plumbing. The most commonly used and effective pH/alkalinity adjustment for this purpose in Alberta treatment practice is:

- ☐ **A** Lowering pH below 6.5 with sulphuric acid to keep metals soluble
- ☒ **B** Maintaining pH in the range of approximately 7.0–8.0 with sufficient alkalinity, often using a corrosion inhibitor such as orthophosphate
- ☐ **C** Removing all alkalinity through complete decarbonation so the water is unbuffered
- ☐ **D** Adding sodium chloride to increase conductivity and passivate metal surfaces

ANSWER B

WHY Lead and copper release from plumbing materials is reduced by raising pH (typically into the 7.0–8.0 range), maintaining adequate alkalinity for buffering, and often adding a corrosion inhibitor such as orthophosphate to form a protective scale. Lowering pH (option A) increases metal solubility, removing alkalinity (option C) eliminates buffering capacity, and adding sodium chloride (option D) does not provide corrosion control.

QUESTION 7

SINGLE CHOICE

Under Alberta occupational health and safety requirements applicable to water treatment facilities, what must be done before a worker enters a confined space such as a clearwell, wet well, or chemical feed vault?

- ☐ A The worker may enter if they carry a portable radio for communication
- ☐ B The worker must have a valid Class 1 water treatment certificate before entry
- ☒ C **A confined-space entry permit must be issued, the atmosphere tested, and adequate ventilation and rescue arrangements in place**
- ☐ D Only a written notice to the supervisor 24 hours in advance is required

ANSWER C

WHY Confined-space entry at water treatment facilities is regulated under Alberta OHS legislation and requires a written entry permit, atmospheric testing (oxygen, flammable gases, toxics), ventilation, isolation of hazards, and arrangements for rescue. Operator certification is required to operate the facility but does not, by itself, authorize confined-space entry.

QUESTION 8 SINGLE CHOICE

A Level 2 water treatment operator is responsible for operational records at a small municipal water treatment plant. Which of the following is required to be retained as part of the plant's operational records under Alberta's drinking water program?

- ☐ A Only the daily flow totals and the operator's signature on a log sheet
- ☒ B Records of routine operational checks (e.g., free chlorine, turbidity, pH), equipment maintenance, calibration, and any abnormal events
- ☐ C Only the results of bacteriological sample analyses, all other measurements may be discarded after 30 days
- ☐ D Only records of chemical purchases, since treatment results can be reproduced from them

ANSWER B

WHY Alberta drinking water operational requirements call for keeping comprehensive records: routine operational monitoring (chlorine residual, turbidity, pH, fluoride if applicable), equipment maintenance and calibration records, abnormal events and corrective actions, and operator qualifications. Option A is too limited, and options C and D omit essential record elements.

QUESTION 9 TRUE FALSE

True or False: After backwashing a rapid sand filter, it is normal practice to discard (filter-to-waste) the initial filtrate for a short period to remove residual backwash water and any dislodged impurities before returning the filter to service.

- ☒ A True
- ☐ B False

ANSWER A

WHY True. Filter-to-waste is standard practice after backwash to flush remaining backwash water, prevent passage of unsettled floc or media particles, and protect downstream disinfection. The volume wasted depends on filter size and media condition, and the practice is recommended by AWWA and is consistent with Alberta good operating practice.