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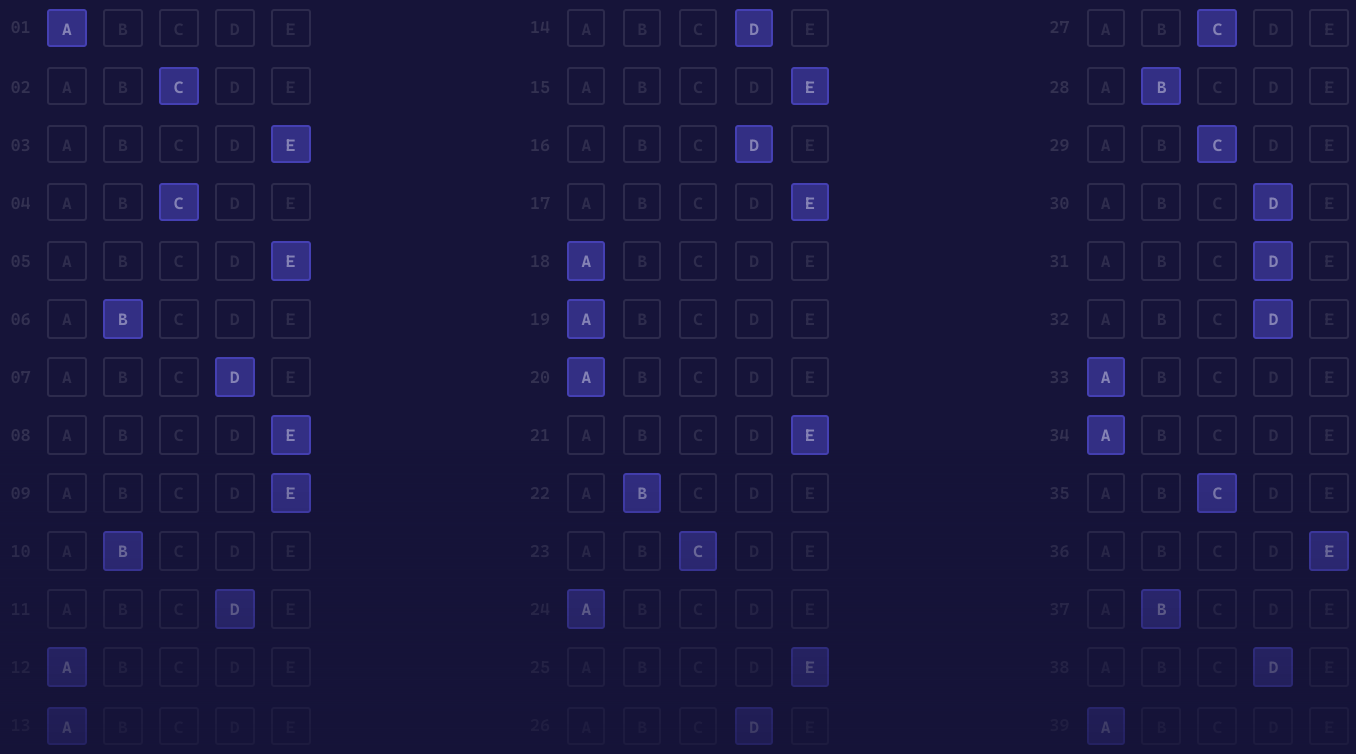

PRACTICE QUESTIONS

ABC-SD: South Dakota Department of Agriculture and Natural Resources

PW8VT7TG

South Dakota Water Treatment Class 1

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for ABC-SD: South Dakota Department of Agriculture and Natural Resources `PW8VT7TG`, 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, `PW8VT7TG`
- 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

A surface water source for a South Dakota treatment plant is found to have high turbidity following a heavy rain event. Which of the following is the most appropriate operational response?

A Reduce the coagulant dose to avoid over-treating the water

B Increase the coagulant dose and switch to an alternative coagulant if needed to maintain proper floc formation

C Shut down the treatment plant until turbidity returns to baseline

D Bypass coagulation and send water directly to filtration

ANSWER B

WHY High turbidity events require increased or alternative coagulant dosing to maintain effective floc formation and protect the filtration process. Reducing coagulant would worsen performance, bypassing treatment violates safe practice, and shutdown is unnecessary.

QUESTION 2 SINGLE CHOICE

During the coagulation process, the chemical reaction that neutralizes the negative charges on suspended particles is called:

A Flocculation

B Charge neutralization (destabilization)

C Sedimentation

D Disinfection

ANSWER B

WHY Coagulation begins with charge neutralization (destabilization), where coagulants neutralize the electrostatic charges keeping particles suspended. Flocculation is the subsequent gentle mixing that builds larger flocs; sedimentation and disinfection are later unit processes.

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QUESTION 3 SINGLE CHOICE

Which condition most likely indicates that a rapid sand filter is in need of backwashing?

A Clear effluent and decreasing head loss

B **Effluent turbidity breakthrough combined with rising head loss**

C Decreasing influent flow rate to the filter

D A sudden drop in the wash water supply temperature

ANSWER B

WHY Filters are backwashed when they accumulate enough solids to cause rising head loss or when turbidity breakthrough occurs in the effluent. Clear effluent with decreasing head loss indicates a healthy filter, not one needing backwash.

QUESTION 4 SINGLE CHOICE

Which of the following best describes the CT concept used in chlorination disinfection?

A **The product of chlorine residual (C) and contact time (T) used to evaluate disinfection effectiveness**

B The ratio of chlorine dose to water temperature

C The time required for chlorine to fully evaporate from treated water

D The concentration of trihalomethanes formed after chlorination

ANSWER A

WHY CT is the product of disinfectant concentration (C) and effective contact time (T). It is used to verify that disinfection conditions are sufficient to achieve required inactivation of pathogens.

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QUESTION 5 SINGLE CHOICE

An operator is collecting a routine compliance sample. Which of the following is the most important personal practice to ensure sample integrity?

A Using any clean container available at the sampling tap

B **Following proper sampling procedures, including using the correct preserved container and labeling**

C Collecting samples only when convenient during the shift

D Replacing sample caps with whichever cap is nearby

ANSWER B

WHY Proper sampling technique—correct preserved containers, correct sample point, correct labeling and chain of custody—is essential for sample integrity and valid compliance reporting. The other options describe practices that compromise results.

QUESTION 6 SINGLE CHOICE

When working with chlorine gas cylinders at a water treatment plant, which safety practice is required?

A Store cylinders in direct sunlight to keep the gas dry

B **Keep a self-contained breathing apparatus (SCBA) available and ensure cylinders are secured with chain restraints**

C Transport cylinders without valve protection caps if handled carefully

D Apply oil to valve threads to ensure a tight seal

ANSWER B

WHY Chlorine cylinder areas must have SCBA available for emergency response, and cylinders must be secured with restraints. Sunlight, heat, and oil exposure are all dangerous with chlorine gas; caps must remain in place during transport.

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QUESTION 7 SINGLE CHOICE

In lime-soda ash softening, what is the primary purpose of adding lime [Ca(OH)2]?

A To disinfect the water

B To remove carbonate hardness by precipitation with calcium and magnesium hydroxide

C To add carbon dioxide to the water

D To lower the pH of the water

ANSWER B

WHY Lime raises pH and provides hydroxide and calcium ions that precipitate carbonate hardness (calcium and bicarbonate/magnesium species). Soda ash is used to address non-carbonate hardness, and lime actually raises—not lowers—pH.

QUESTION 8 MULTIPLE CHOICE

Which of the following are common jar test parameters that an operator may vary to optimize coagulation? (Choose two.)

A Coagulant dose

B Rapid mix and flocculation mixing speed/time

C pH of the surrounding control room

D The brand of laboratory glassware used

ANSWER A · B

WHY Jar tests are used to optimize coagulant dose and mixing conditions (rapid mix speed/duration and flocculation speed/duration) so that the full-scale plant can be operated effectively. pH of the control room and glassware brand do not affect coagulation chemistry.

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QUESTION 9 MULTIPLE CHOICE

Which of the following are recommended routine checks for a centrifugal pump at a water treatment plant? (Choose two.)

A **Verify packing or mechanical seal condition and look for leaks**

B **Check pump and motor bearing temperatures and listen for abnormal noise/vibration**

C Confirm the discharge piping is unplugged only during annual inspection

D Ensure the pump never has a nameplate

ANSWER **A** · **B**

WHY Routine pump checks include inspecting seals/packing for weeps, monitoring bearing temperatures and listening for abnormal noise or vibration, and verifying lubrication. Pumps are monitored continuously, not just annually, and every pump has a nameplate used for proper identification.

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