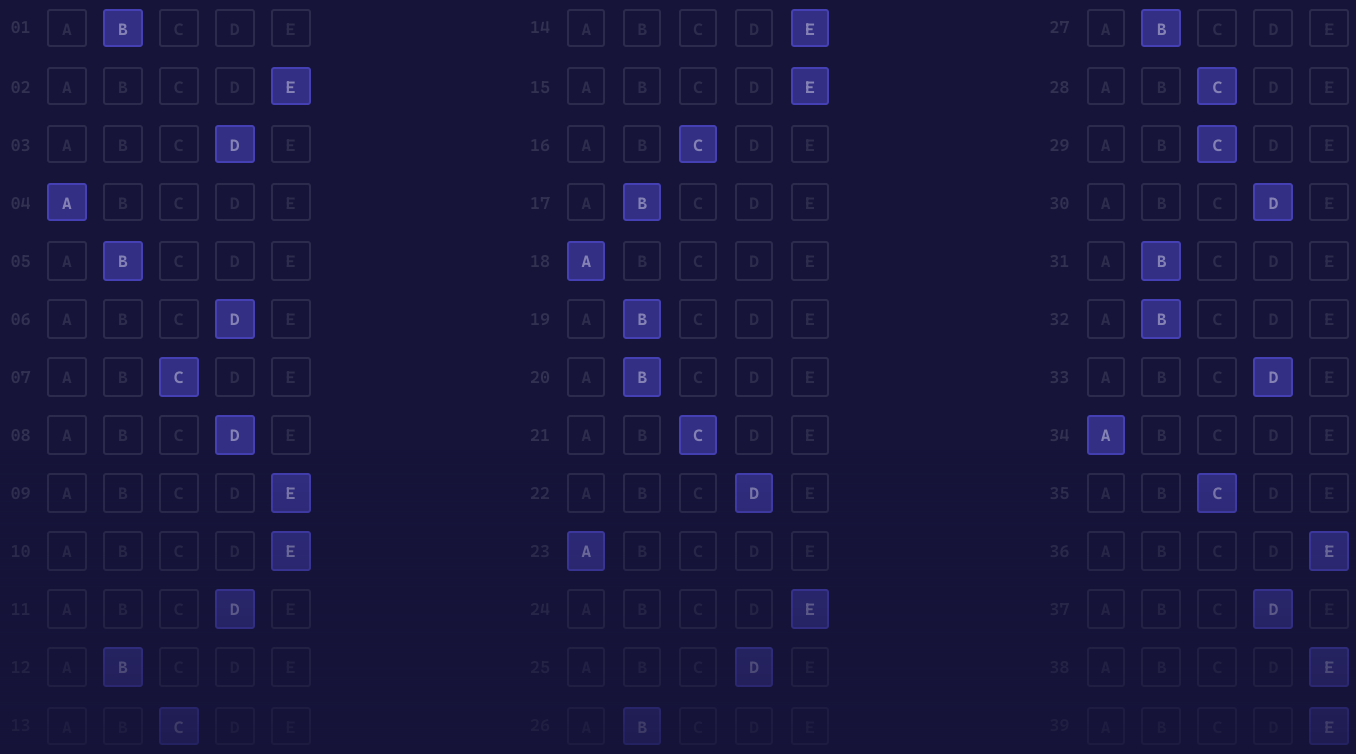
MOMETRIX
SMARTER PREP. BETTER RESULTS.



PRACTICE QUESTIONS

Colorado Certified Water Professionals

HRX6UWTL

Colorado Wastewater Treatment Operator Class A

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

WEB www.mometrix.net

SUPPORT support@mometrix.net

Before you begin

What this is

9 practice questions for Colorado Certified Water Professionals `HRX6UWTL`, 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, `HRX6UWTL`
- the question number
- the email address on your order

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

mometrix.net

QUESTION 1 MULTIPLE CHOICE

A Class A operator reviews the following data from the activated sludge process: influent BOD5 = 240 mg/L, effluent BOD5 = 12 mg/L, mixed liquor suspended solids (MLSS) = 2,800 mg/L, mixed liquor volatile suspended solids (MLVSS) = 2,100 mg/L, and flow rate = 4.5 MGD. Which TWO calculations are required to evaluate process performance? (Choose two.)

A **Food-to-microorganism ratio (F/M)**

B **Mean cell residence time (MCRT / sludge age)**

C BOD loading rate per acre of clarifier surface

D Sludge volume index (SVI)

E Trickling filter recirculation ratio

ANSWER **A · B**

WHY F/M ratio uses influent BOD, MLVSS, and flow (lbs BOD applied per lb MLVSS per day) and is a core activated sludge control calculation. MCRT (solids retention time) is computed using MLSS, wasted sludge quantity, and effluent solids — also a standard Class A process control calculation. BOD per acre is for ponds/trickling filters, SVI is for settleability (helpful but not always 'required'), and recirculation ratio applies to trickling filters — not standard activated sludge performance calculations.

mometrix.net

QUESTION 2 MULTIPLE CHOICE

Which THREE of the following are required elements of a compliant confined space entry program at a wastewater treatment plant? (Choose three.)

- **A** **Atmospheric testing for oxygen, flammable gases, and hydrogen sulfide prior to entry**
- **B** **A written entry permit identifying authorized entrants, attendants, and rescue procedures**
- **C** An employee profit-sharing plan covering all entrants
- **D** A trained attendant stationed outside the space who maintains communication with entrants
- **E** **Certified rescue services available or a trained in-house rescue team**
- **F** A routine herbicide application schedule for the space

ANSWER **A · B · E**

WHY OSHA 29 CFR 1910.146 requires atmospheric testing, a written permit program with defined roles, and rescue capability (either fire department/EMS response or a designated in-house rescue team). While an attendant is also required, the question is limited to three; atmospheric testing, the written permit, and rescue services are the three most commonly cited compliance elements. Profit-sharing and herbicide application are unrelated to confined space safety.

QUESTION 3 SINGLE CHOICE

A primary clarifier receives a flow of 2.0 MGD with an influent suspended solids concentration of 280 mg/L. How many pounds of suspended solids enter the clarifier each day?

- **A** 467 lbs/day
- **B** 934 lbs/day
- **C** 1,868 lbs/day
- **D** **4,672 lbs/day**

ANSWER **D**

WHY Pounds per day = 2.0 MGD × 280 mg/L × 8.34 lbs/gal = 560 × 8.34 = 4,670.4 lbs/day, which rounds to 4,672 lbs/day. The 8.34 conversion factor is the standard operator formula (MGD × mg/L × 8.34 = lbs/day).

QUESTION 4 SINGLE CHOICE

What is the primary purpose of the screening process at the headworks of a wastewater treatment plant?

A To remove dissolved organic matter from the influent

B To remove large solids and debris that could damage downstream equipment

C To reduce the biochemical oxygen demand (BOD) of the wastewater

D To disinfect the wastewater before discharge

ANSWER B

WHY Screening removes rags, sticks, plastics, and other large debris that would foul or damage pumps, grinders, and downstream processes. Dissolved organics removal, BOD reduction, and disinfection are accomplished later in the treatment train (biological treatment, settling, and chlorination/UV).

QUESTION 5 SINGLE CHOICE

In anaerobic digestion of wastewater solids, which operating parameter is most critical to maintain for stable digester performance?

A Dissolved oxygen concentration above 2.0 mg/L

B pH maintained in the alkaline range (approximately 6.8 to 7.4)

C Free chlorine residual of 1.0 mg/L

D Ultraviolet light intensity of 30 mW/cm^2

ANSWER B

WHY Anaerobic digesters, particularly in the methane-forming stage, are sensitive to pH and are typically maintained around 6.8–7.4 (some references cite 6.8–7.2 optimal, with acceptable up to ~7.4) because methanogens are inhibited by acidity. Dissolved oxygen, free chlorine, and UV intensity relate to aerobic processes or disinfection — not anaerobic digestion.

mometrix.net

QUESTION 6 SINGLE CHOICE

A treatment plant applies a chlorine dose of 8 mg/L to a flow of 5.25 MGD. How many pounds of chlorine are required per day?

A 262 lbs/day

B 350 lbs/day

C 438 lbs/day

D 525 lbs/day

ANSWER B

WHY Pounds per day = 5.25 MGD × 8 mg/L × 8.34 lbs/gal = 42 × 8.34 = 350.28 lbs/day. This is the standard chemical dosing formula tested at the Class A level.

QUESTION 7 SINGLE CHOICE

Which factor most directly reduces the effectiveness of ultraviolet (UV) disinfection at a wastewater treatment plant?

A Low influent pH

B High suspended solids and turbidity in the wastewater

C Excess dissolved oxygen in the effluent

D Ambient air temperature above 70°F

ANSWER B

WHY UV light must penetrate the water to inactivate microorganisms. High suspended solids, turbidity, color, and iron create shielding and absorption that drastically reduce UV transmittance. pH, dissolved oxygen, and ambient air temperature have minimal direct effect on UV dose delivery to organisms.

mometrix.net

QUESTION 8 SINGLE CHOICE

An operator observes that the mixed liquor in the aeration basin has a frothy, dark brown appearance and the sludge blanket in the secondary clarifier is rising. The dissolved oxygen reading in the aeration basin is 0.4 mg/L. What condition is the process most likely experiencing?

A Nitrification

B Bulking sludge due to low dissolved oxygen

C Denitrification in the clarifier

D Sludge age is too high (high MCRT)

ANSWER B

WHY Low dissolved oxygen (well below the typical 2.0 mg/L minimum) favors the growth of filamentous organisms such as Microthrix parvicella and type 021N, causing bulking and a rising sludge blanket. Dark brown, frothy mixed liquor with a DO near zero is a classic presentation of filamentous bulking under oxygen-limited conditions. While denitrification in the clarifier can also float sludge, the dark brown color combined with the very low basin DO points to bulking from low DO as the primary cause.

QUESTION 9 SINGLE CHOICE

What is the typical removal efficiency range for total suspended solids (TSS) in a well-operated primary clarifier?

A 5–15%

B 25–40%

C 50–70%

D 85–95%

ANSWER C

WHY A well-operated primary clarifier typically removes 50–70% of TSS and 25–40% of BOD5 through plain sedimentation. Removal efficiencies of 85–95% are achievable only in advanced/high-rate clarifiers with chemical addition, and 5–15% would indicate a poorly performing or overloaded clarifier.