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39	A	B	C	D	E

PRACTICE QUESTIONS

Association of Boards of Certification

X65XZEP9

WPI Water Laboratory Analyst Class 1-OIT

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Association of Boards of Certification **X65XZEP9**, 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, **X65XZEP9**
- 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 laboratory analyst is preparing to work with a strong acid for the first time. Which of the following is the MOST appropriate personal protective equipment (PPE) practice before handling the acid?

- ☒ **A** Wear chemical-splash safety goggles, a lab coat, and acid-resistant gloves, and know the location of the eyewash and safety shower
- ☐ **B** Wear prescription eyeglasses and nitrile gloves, since the hood will contain any splash
- ☐ **C** Wear only a lab coat and keep the eyewash station in mind in case of exposure
- ☐ **D** Wear safety glasses and a face shield together so the face shield alone is sufficient for eye protection

ANSWER A

WHY Acid work requires chemical-splash goggles (not just safety glasses), a lab coat, and acid-resistant gloves, plus prior knowledge of emergency equipment location. Prescription eyeglasses do not provide splash protection, the eyewash must be known before work begins, and a face shield is worn over goggles, not in place of them.

QUESTION 2

SINGLE CHOICE

A laboratory analyst is reviewing a method's QC requirements. Which QC sample is specifically used to demonstrate that the analytical instrument's response has not drifted significantly during a sample run?

- ☐ **A** Method blank
- ☒ **B** Continuing calibration verification (CCV)
- ☐ **C** Laboratory duplicate
- ☐ **D** Matrix spike

ANSWER B

WHY A continuing calibration verification (CCV) is analyzed at defined intervals during a run to confirm the instrument calibration remains valid and to detect drift. A method blank checks for contamination, a laboratory duplicate checks precision, and a matrix spike checks accuracy/recovery in the sample matrix.

QUESTION 3 SINGLE CHOICE

When performing a heterotrophic plate count (HPC) by the pour plate method, the plates are typically incubated in which orientation and temperature range?

- ☐ A Inverted at 35 °C ± 0.5 °C for 48 hours
- ☐ B Upright at 44.5 °C for 24 hours
- ☒ C Inverted at 20–28 °C for 5–7 days depending on the method
- ☐ D Inverted at 0 °C for 24 hours

ANSWER C

WHY Standard HPC pour plate methods (such as Standard Methods 9215) incubate plates inverted to prevent condensation from dripping onto the agar surface, with incubation conditions depending on the variant—commonly around 20–28 °C for an extended period (such as 5–7 days) or 35 °C for 48 hours. Option C reflects the typical HPC incubation parameters; option B describes coliform/thermophilic conditions, and the inverted orientation rules out option A only when both orientation and temperature are evaluated together.

QUESTION 4 SINGLE CHOICE

A water sample collected for total residual chlorine analysis must be analyzed in the field immediately because:

- ☒ A Residual chlorine is highly volatile and dissipates rapidly from the sample container
- ☐ B Chlorine converts to chloramine on standing, producing a positive interference
- ☐ C The sample must reach equilibrium with atmospheric carbon dioxide first
- ☐ D The sample bottle must be allowed to equilibrate to room temperature

ANSWER A

WHY Residual chlorine is unstable and dissipates from solution over time, so the determination must be performed in the field immediately after sample collection. The other options describe reactions that do not govern residual chlorine stability in the sample container.

QUESTION 5

SINGLE CHOICE

A stock standard has a concentration of 1000 mg/L. The analyst prepares a 250 mL volumetric flask with 5.00 mL of the stock diluted to volume. What is the concentration of the working standard?

- ☐ A 5 mg/L
- ☒ B 20 mg/L
- ☐ C 50 mg/L
- ☐ D 200 mg/L

ANSWER B

WHY Using $C_1V_1 = C_2V_2$: $(1000 \text{ mg/L})(5.00 \text{ mL}) = (C_2)(250 \text{ mL})$, so $C_2 = 5000/250 = 20 \text{ mg/L}$. The other values correspond to common dilution errors (forgetting the dilution factor, using 100 mL instead of 250 mL, etc.).

QUESTION 6

SINGLE CHOICE

An analyst completes a chlorine residual test and records the result on the bench sheet. Which of the following is the MOST important information to record along with the result for proper documentation?

- ☒ A The analyst's signature, date and time of analysis, and the calibration status of the instrument used
- ☐ B Only the numerical result, since the bench sheet header already lists the analyst
- ☐ C The color observed before the reagent was added
- ☐ D The expiration date of the buffer solution used the previous day

ANSWER A

WHY Defensible laboratory records must identify the analyst, the date/time of analysis, and confirm the equipment was in calibration at the time of the test. Single-result entries without analyst/calibration context are not defensible, and information unrelated to the test performed is not appropriate documentation for that result.

QUESTION 7 SINGLE CHOICE

Which color occupies the top position in the standard NFPA hazard diamond and what does it represent?

- ☐ A Blue – health hazard
- ☒ B Red – flammability hazard
- ☐ C Yellow – reactivity hazard
- ☐ D White – special hazard

ANSWER B

WHY In the NFPA 704 diamond, the top quadrant is red and represents flammability. Blue (left) is health, yellow (right) is reactivity, and white (bottom) is special hazards.

QUESTION 8 SINGLE CHOICE

A wastewater sample is reported to contain 1500 mg/L of total suspended solids (TSS). What is this concentration expressed in mg/mL?

- ☐ A 0.0015 mg/mL
- ☒ B 1.5 mg/mL
- ☐ C 15 mg/mL
- ☐ D 1500 mg/mL

ANSWER B

WHY $1500 \text{ mg/L} = 1500 \text{ mg per } 1000 \text{ mL} = 1.5 \text{ mg/mL}$. The other choices result from incorrectly placing the decimal (0.0015 mg/mL, off by a factor of 1000) or from failing to convert liters to milliliters at all (15 mg/mL is off by a factor of 10; 1500 mg/mL leaves the value unchanged).

QUESTION 9

SINGLE CHOICE

A laboratory analyst is preparing to dilute a concentrated sulfuric acid stock for reagent use. Which of the following is the correct procedure?

- ☐ A Add water slowly to the acid while stirring in a large beaker
- ☒ B Add the acid slowly to water while stirring in a heat-resistant container
- ☐ C Add equal volumes of acid and water simultaneously to a flask
- ☐ D Add the acid to the water only after both have cooled to 4 °C in a refrigerator

ANSWER B

WHY When diluting concentrated acids, the acid should always be added slowly to water (never water to acid). Adding water to concentrated acid generates heat at the interface and can cause the lighter water to flash-boil, splattering acid. A heat-resistant container is used because the dilution is exothermic. The other procedures either reverse the safe order, mix in a non-heat-tolerant vessel, or introduce an unnecessary and unsafe cooling step.