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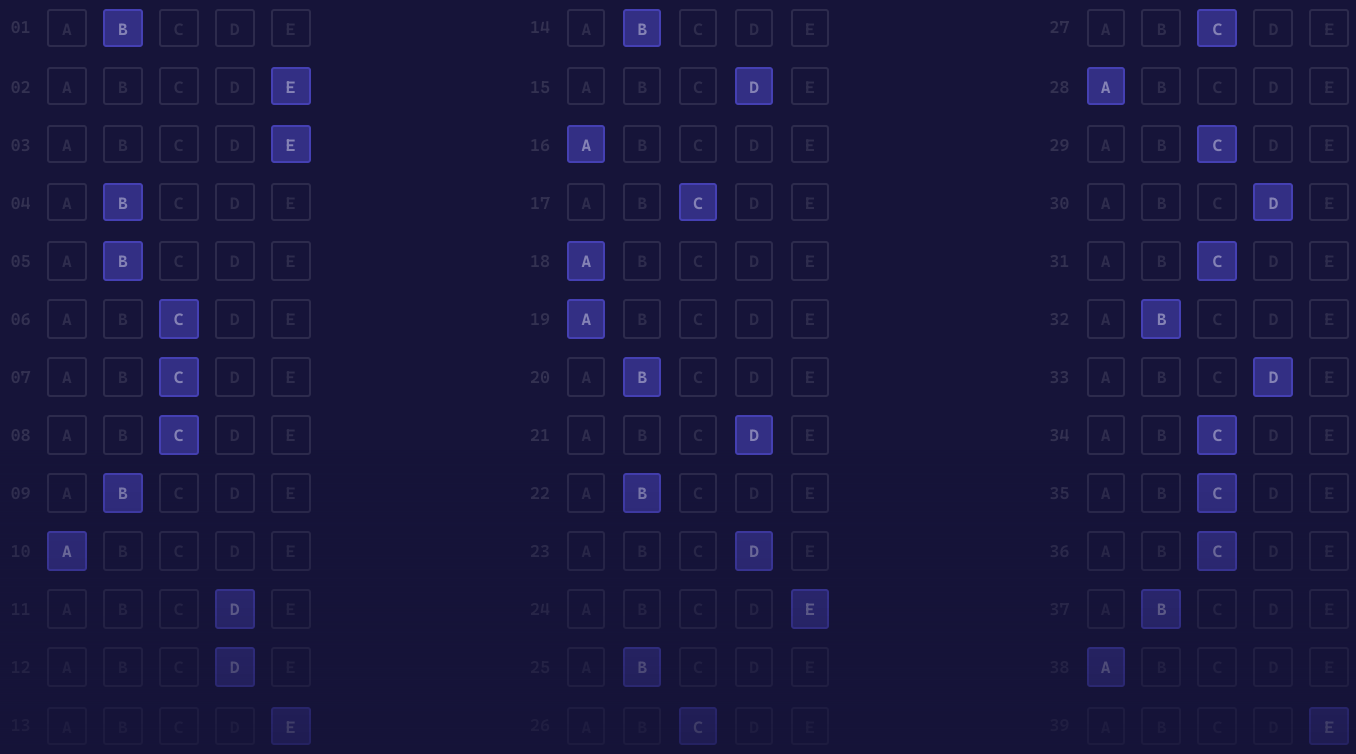

PRACTICE QUESTIONS

ABC-MO: Missouri Department of Natural Resources

Z97SESKC

Wastewater Treatment Level D (WW-D)

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for ABC-MO: Missouri Department of Natural Resources `Z97SESKC`, 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, `Z97SESKC`
- 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

The primary purpose of grit removal in preliminary treatment is to:

A Remove dissolved organic matter from the wastewater

B **Remove inorganic settleable solids such as sand and gravel to protect downstream equipment**

C Disinfect the wastewater before it enters primary clarifiers

D Aerate the wastewater to prevent septic conditions

ANSWER **B**

WHY Grit chambers are designed to remove heavy inorganic particles (sand, gravel, cinders) that would otherwise abrade pumps, clog pipes, and accumulate in digesters and clarifiers. Dissolved organics are not removed here, disinfection occurs later, and grit removal is not an aeration process.

QUESTION 2 SINGLE CHOICE

In preliminary treatment, the primary function of a bar screen is to:

A Remove inorganic sand and gravel particles from the wastewater

B **Remove large floating, suspended, or settleable solids that could damage downstream equipment**

C Reduce the biochemical oxygen demand of the incoming wastewater

D Disinfect the wastewater before it enters primary clarification

ANSWER **B**

WHY Bar screens are designed to remove large objects and coarse debris (rags, sticks, plastics, etc.) that could foul or damage pumps, pipes, and downstream treatment equipment. Grit removal is a separate process that handles inorganic particles like sand and gravel. Reducing BOD and disinfection are functions of secondary and tertiary treatment, not preliminary screening.

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QUESTION 3 SINGLE CHOICE

In a primary clarifier, the floatable material that rises to the surface is collected in a scum trough. What is the typical source of scum?

A Settled inorganic grit carried over from the grit chamber

B Activated sludge solids lost from the aeration tank

C Oils, greases, plastics, and other floating materials in the raw wastewater

D Excess biological foam generated by the secondary treatment process

ANSWER C

WHY Scum collected at primary clarifiers typically consists of oils, greases, plastics, wood chips, and other materials that are less dense than water and float to the surface. Grit is inorganic and settles, not floats. Activated sludge and biological foam are associated with secondary treatment, not the raw wastewater entering primary clarification.

QUESTION 4 SINGLE CHOICE

Which operational parameter is defined as the ratio of the food (influent substrate) supplied to the microorganisms to the mass of microorganisms maintained in the aeration tank?

A Mean Cell Residence Time (MCRT)

B Food-to-Microorganism ratio (F/M)

C Hydraulic Retention Time (HRT)

D Dissolved Oxygen (DO) concentration

ANSWER B

WHY The Food-to-Microorganism (F/M) ratio compares the daily pounds of BOD applied to the aeration tank to the pounds of mixed liquor volatile suspended solids (MLVSS) in the tank. MCRT (sludge age) measures the average time solids remain in the system. HRT measures hydraulic detention time. DO measures the dissolved oxygen concentration in the mixed liquor.

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QUESTION 5 SINGLE CHOICE

When chlorine is used for wastewater disinfection, what is the operational concern that requires careful monitoring to ensure effective pathogen kill?

A Excess alkalinity in the effluent

B High turbidity shielding microorganisms from contact with the disinfectant

C Low influent temperature increasing chlorine demand

D Excessive mixed liquor suspended solids

ANSWER B

WHY Turbidity in the effluent shields or surrounds microorganisms, preventing them from being exposed to the chlorine disinfectant and reducing disinfection effectiveness. Alkalinity, mixed liquor suspended solids, and temperature are not the primary concern with chlorine disinfection effectiveness in the contact basin.

QUESTION 6 SINGLE CHOICE

In an anaerobic digester, what are the primary end products of the digestion process?

A Nitrogen gas and water

B Methane, carbon dioxide, and stabilized biosolids

C Hydrogen sulfide and ammonia only

D Oxygen and stabilized organic matter

ANSWER B

WHY Anaerobic digestion converts volatile solids in sludge into biogas (primarily methane and carbon dioxide), while producing a stabilized biosolids product suitable for further treatment or land application. The process occurs in the absence of oxygen, so oxygen is not a product. Nitrogen gas and water are not the primary products, and H2S and ammonia are trace/intermediate compounds, not the main outputs.

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QUESTION 7 SINGLE CHOICE

What is the main operational reason that influent flow should be measured at a wastewater treatment plant?

A To verify the accuracy of customer water meters

B To calculate process loading rates, hydraulic retention times, and chemical doses

C To determine the dissolved oxygen demand of the incoming wastewater

D To control the grit chamber blowdown frequency

ANSWER B

WHY Influent flow measurement is essential for plant operation. Flow data is used to calculate hydraulic loading, hydraulic retention time (HRT), organic loading rates (F/M), and chemical dosing rates. BOD/DO testing, not flow, measures the strength of the wastewater. Customer meter accuracy and grit blowdown frequency are not the primary reasons for influent flow measurement.

QUESTION 8 SINGLE CHOICE

What is the function of return activated sludge (RAS) in the activated sludge process?

A To introduce new microorganisms into the aeration tank

B To return settled biomass from the secondary clarifier back to the aeration tank to maintain the desired MLSS concentration

C To remove excess sludge from the system

D To provide additional dissolved oxygen to the mixed liquor

ANSWER B

WHY Return activated sludge (RAS) recycles settled biomass from the secondary clarifier back to the aeration tank to maintain an adequate concentration of active microorganisms (MLSS) for treating incoming BOD. New microorganisms come from the influent, not RAS. Excess sludge is removed via waste activated sludge (WAS), and dissolved oxygen is supplied by aeration equipment, not RAS.

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QUESTION 9 SINGLE CHOICE

Which of the following is a potential operational problem if a bar screen is not cleaned frequently enough?

A Decreased dissolved oxygen in the aeration tank

B Increased headloss across the screen, causing upstream channel flooding

C Excessive chlorine residual in the contact basin

D Loss of nitrification in the secondary treatment process

ANSWER B

WHY As debris collects on a bar screen, headloss (the difference in water level between the upstream and downstream sides of the screen) increases. If not cleaned, the screen becomes clogged, water backs up, and the upstream channel can overflow. Dissolved oxygen, chlorination, and nitrification are downstream processes not directly affected by bar screen maintenance.

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