



FALL 2024 – SECONDARY TREATMENT

The following questions are designed for individuals/trainees pursuing certification as they prepare to take the ABC wastewater operator test. It is also designed for existing operators to test their knowledge. Each issue of *Clear Waters* will have more questions from a different process of wastewater treatment. Good luck!

- 1)** During parallel settleometer tests, both samples settle to the same volume in 30 minutes. If one of the settleometer samples has been diluted to 50%, what can this indicate?
- A. sludge velocity is affected by MLSS concentration
 - B. sludge velocity is unaffected by MLSS concentration
 - C. sludge velocity is affected by filament concentration
 - D. sludge velocity is unaffected by filament concentration
- 2)** During parallel settleometer tests, both samples settle to different volumes in 30 minutes. If one of the settleometer samples has been diluted to 50%, what can this indicate?
- A. sludge velocity is unaffected by MLSS concentration
 - B. sludge velocity is affected by MLSS concentration
 - C. sludge velocity is unaffected by filament concentration
 - D. sludge velocity is affected by filament concentration
- 3)** Waste activated sludge influences all of the following EXCEPT:
- A. sludge settleability
 - B. sludge concentration
 - C. sludge age
 - D. sludge color
- 4)** Which of the following is commonly used in toxicity tests?
- A. nematodes
 - B. fathead minnows
 - C. large-mouth bass
 - D. water bear
- 5)** The theoretical dosage of sulfur dioxide when used for dechlorination is _____.
- A. 0.9 mg/L SO₂ per 1.0 mg/L chlorine residual
 - B. 0.5 mg/L SO₂ per 1.0 mg/L chlorine residual
 - C. 0.1 mg/L SO₂ per 1.0 mg/L chlorine residual
 - D. 1.5 mg/L SO₂ per 1.0 mg/L chlorine residual
- 6)** Nitrifying autotrophic bacteria mainly obtain their energy from _____.
- A. carbon
 - B. ammonia
 - C. nitrate, sulfate
 - D. alkalinity
- 7)** The discharge pressure for a positive displacement blower in a wastewater treatment plant can run as high as _____.
- A. 30 psi
 - B. 28 psi
 - C. 22 psi
 - D. 19 psi
- 8)** Heterotrophic bacteria obtain their carbon from _____.
- A. inorganic compounds
 - B. dissolved carbon dioxide
 - C. graphite
 - D. organic compounds
- 9)** When looking at a mixed liquor sample under a microscope, no large floc particles are seen. What is this describing?
- A. inter-bridging of particles
 - B. dispersed floc
 - C. irregular floc
 - D. deflocculation
- 10)** Which biochemical reaction may take place in an aerobic basin?
- A. conversion of ammonia to nitrate
 - B. conversion of nitrate to nitrogen gas
 - C. production of volatile fatty acids
 - D. production of alkalinity

Answers:

- 10) A.** conversion of ammonia to nitrate
9) B. dispersed floc
8) D. organic compounds
7) A. 30 psi
6) B. ammonia
5) A. 0.9 mg/L SO₂ per 1.0 mg/L chlorine residual
4) B. fathead minnows
3) D. sludge color
2) B. sludge velocity is affected by MLSS concentration
1) C. sludge velocity is affected by filament concentration