

Operator Quiz Test No. 102 – Biological Treatment

The following questions are designed for trainees 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 section of wastewater treatment. Good luck!

1. If an in-tank dissolved oxygen (DO) probe is improperly calibrated at an aeration tank resulting in lower values than actual, what result is most likely?
 - a. Not enough DO will be provided for nitrification
 - b. The aeration blower will not be providing enough DO to the microorganisms
 - c. The aeration blower will be running more than required wasting energy
 - d. Low DO filamentous bacteria are likely to form
2. If a large dairy discharges a much higher than normal organic load to the sewer system, the operator's first indicator is:
 - a. A decrease in the DO concentration in the aeration tank
 - b. Floatables in the final clarifier
 - c. BOD in final effluent has increased
 - d. Sludge production has increased
3. Why are the horizontal pipes holding air diffusers at the same elevation in an aeration tank?
 - a. To provide a tapered release of air into the reactor
 - b. To accomplish complete mixing
 - c. To ensure diffuser clogging does not occur
 - d. For an even air release into the reactor
4. If there is insufficient withdrawal of settled sludge from a secondary clarifier, what can occur?
 - a. Sludge rising to the surface
 - b. Presence of gas bubbles in the clarifier
 - c. Turbid effluent
 - d. All of the above
5. Rotating Biological Contactor (RBC) Units are usually installed in a concrete tank so that the surface of the wastewater passing through the tank almost reaches the shaft.
 - a. True
 - b. False
6. If there is no oxygen present and all biological activity within the pond is anaerobic, this is known as what type of pond?
 - a. Aerobic pond
 - b. Anaerobic pond
 - c. Facultative pond
 - d. Aerated pond
7. What is the watery mixture of microorganisms and solids removed from the settling tank called?
 - a. Mixed liquor suspended solids
 - b. Mixed liquor volatile suspended solids
 - c. Mixed liquor
 - d. Activated sludge
8. A 2,000 mL sample of activated sludge is allowed to settle for 30 minutes. At the end of 30 minutes, the sludge volume is 1,100 mL. What is the 30-minute settled sludge volume (SSV30)?
 - a. 552 mL/L
 - b. 550 mL/L
 - c. 110 mL/L
 - d. 475 mL/L

9. What are the chemicals called that are released by microorganisms in the biological treatment process that break down adsorbed food particles?
 - a. biomass
 - b. enzymes
 - c. sulfides
 - d. chlorides
10. The measurement of oxygen required during the stabilization of decomposing organic solids by an aerobic process is:
 - a. biochemical oxygen demand
 - b. dissolved oxygen
 - c. ozonation
 - d. chlorination
11. What is the best description of nitrification?
 - a. ammonia is converted to COD
 - b. nitrites are converted to ammonia
 - c. ammonia is converted to nitrites and nitrates
 - d. nitrates are converted to ammonia and nitrites
12. Advantages of a pure oxygen activated sludge process include:
 - a. smaller aeration basins are required
 - b. ability to handle shock loads
 - c. decreased solids production
 - d. all of the above






1c, 2a, 3d, 4d, 5a, 6b, 7d, 8b, 9b, 10a, 11c, 12d
Answers:

For those who have questions concerning operator certification requirements and scheduling, please contact Tanya May Jennings at 315-422-7811 ext. 4/tmj@nywea.org, or visit www.nywea.org/OpCert.

WATER'S WORTH IT

Water should be clear, but not invisible. Indispensable to jobs, the economy, our health, and our communities, water runs through our lives in many ways.

We all have something at stake when it comes to water. Each of us also has a valuable contribution to make.

 **YOUR RESPECT**  **YOUR EFFORT**  **YOUR FUTURE**  **YOUR HEALTH**  **YOUR LOYALTY**

Be as good to water as water's been to you.
To learn more, visit www.WatersWorthIt.org.