

Operator Quiz Test No. 119 – Definitions & Process Troubleshooting

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. Mineral-type compounds that are generally nonvolatile, not combustible and not biodegradable are called:
 - a. Inorganic
 - b. Organic
 - c. Volatile solids
 - d. Struvite
2. The process of removing soluble components from aqueous solution by contact with highly adsorptive granular or powdered carbon is known as:
 - a. Charcoal filtering
 - b. Activated carbon adsorption
 - c. Activated carbon absorption
 - d. Sand filter treatment
3. When a pump is obstructed due to air entrapped in a high point restricting the free flow of water, the pump is said to be:
 - a. Plugged
 - b. Cavitating
 - c. Air-bound
 - d. Short-circuiting
4. A valve, when opening or closing, consists of a disk that rotates about a spindle supported by the frame of the valve. At the full open position, the disk is parallel to the axis of the conduit. This is known as a:
 - a. Butterfly valve
 - b. Gate valve
 - c. Ball valve
 - d. Pinch Valve
5. The amount of heat necessary to raise the temperature of 1 gram of 15°C water by 1°C is called:
 - a. Calorie
 - b. BTU
 - c. Celsius
 - d. Thermophilic range
6. A device with V-notch, trapezoidal or rectangular geometric configuration that is used to measure and control the flow of liquid is called a:
 - a. Flow meter
 - b. Control valve
 - c. Venturi
 - d. Weir
7. The unit of electromotive force that, if steadily applied to a circuit having a resistance of one ohm, will produce a current of one ampere is called a:
 - a. Volt
 - b. Amp
 - c. Load
 - d. Diode
8. The amount of solids applied to a treatment process per unit time per unit volume is known as:
 - a. Chemical loading
 - b. Solids loading
 - c. Solids inventory
 - d. Total suspended solids
9. The oxygen used during biological oxidation, typically expressed as mg O₂/L/h in the activated sludge process is called:
 - a. Oxygen transfer
 - b. Oxygen utilization
 - c. Oxygen reduction potential
 - d. Oxygen uptake rate
10. The oxidation of ammonia nitrogen to nitrate nitrogen in wastewater by biological or chemical reactions is called:
 - a. Nitrification
 - b. Denitrification
 - c. Redox
 - d. Fermentation
11. A primary clarifier is experiencing black and odorous septic wastewater and sludge. Which of the following statements is true regarding this scenario?
 - a. The probable cause is a malfunctioning collector. Inspect sludge collectors and run them continuously.
 - b. The probable cause is improper sludge removal pumping cycles. Check sludge density and add chemicals to influent flow.
 - c. The probable cause is a plugged withdrawal line. Check sludge pump output and clear the line.
 - d. The probable cause is septic waste hauler dumpers. Review operator logs and add chemicals to influent flow.
12. An operator observes clouds of billowing homogeneous sludge rising and extending throughout a secondary clarifier. Mixed liquor settles slowly and compacts poorly in a settling test, but the supernatant is fairly clear. Which of the following statements is most accurate regarding this scenario?
 - a. Improper dissolved oxygen concentration is a result of RAS rate. Increase dissolved oxygen by increasing RAS rate.
 - b. A microscopic exam shows a normal distribution of activated sludge organisms. Chlorinate influent flow to reduce the amount of filamentous bacteria in this distribution.
 - c. Low dissolved oxygen, less than 0.5 mg/L, is noticed in the biological reactor. Check DO concentrations throughout the entire reactor and increase DO levels to between 1 and 3 mg/L.
 - d. The pH in the biological reactor is less than 6.5. Monitor effluent flow and add alkaline agent to raise pH.
13. A rotating biological reactor is experiencing an increase in snail growth. Which of the following is the most accurate statement regarding this?
 - a. Lowering organic loading will prevent snail growth.
 - b. Periodically slowing down the RBC speed will help eliminate snail growth.
 - c. Snail growth is not an issue experienced in RBC operation.
 - d. Periodic chemical cleaning is necessary for conditions prone to snail growth.
14. A lagoon is experiencing an increased growth of weeds. Which of the following is the most accurate statement?
 - a. Weeds in a lagoon are favorable and help to control insect population.
 - b. An insufficient water depth will not allow weeds to grow.
 - c. Poor circulation and maintenance is the probable cause of weed growth.
 - d. Weeds in a lagoon are favorable so herbicides are avoided as a means of control.
15. An operator is experiencing an increase in effluent solids in a dissolved air flotation thickener. Which is the best explanation for this?
 - a. The unit is overloaded.
 - b. The polymer dosage is too high.
 - c. The skimmer is running on a timer.
 - d. A decrease in septic sludge on bottom of unit.

Answers from page 61: 1A, 2B, 3C, 4A, 5A, 6D, 7A, 8B, 9D, 10A, 11C, 12C, 13D, 14C, 15A

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.