

# Operator Quiz Test No. 108 – Laboratory

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!

- The incubation temperature range for BOD<sub>5</sub> test is:
  - 19.0°C – 21.0°C
  - 20.0°C – 22.0°C
  - 20.0°C – 20.9°C
  - 18.0°C – 20.0°C
- Calculate the Biochemical Oxygen Demand for the following:  
Initial Dissolved Oxygen: 8.3 mg/L  
Final Dissolved Oxygen: 5.4 mg/L  
Initial Sample Temperature: 12°C  
Sample Size: 20 mL
  - BOD cannot be determined
  - 43.5 mg/L
  - 12.8 mg/L
  - 75.9 mg/L
- Determine the Total Suspended Solids given the following information:  
Weight of crucible and filter: 22.2213 g  
Weight of crucible, filter and dry sample: 22.2310 g  
Sample size: 5.0 mL
  - 9700 mg/L
  - 194.0 mg/L
  - 1940 mg/L
  - 4850 mg/L
- 75 mL of 15°C tap water requires 18 mL of 0.0200N sulfuric acid to change the pH to 4.5. What is the alkalinity of the sample of tap water?
  - 9.14 mg CaCO<sub>3</sub>/L
  - 9722 mg CaCO<sub>3</sub>/L
  - 102.9 mg CaCO<sub>3</sub>/L
  - 0.0021 mg CaCO<sub>3</sub>/L
- The minimal residual dissolved oxygen content for a BOD<sub>5</sub> test is:
  - 9.2 mg/L
  - 2.6 mg/L
  - 2.0 mg/L
  - 1.0 mg/L
- What is the chemical formula for nitric acid?
  - H<sub>2</sub>SO<sub>4</sub>
  - HCl
  - HNO<sub>3</sub>
  - NaOH
- A dish containing a lab sample is ignited to 550°C in a muffle furnace, cooled for 30 minutes in a desiccator, and then weighed. The most likely reason for this procedure is to test for:
  - Total Solids
  - BOD
  - Volatile Solids
  - Fecal Coliform
- Calculate the suspended solids of a plant influent composite sample:
  - Volume of sample = 50 mL
  - Crucible weight = 22.5326 grams
  - Crucible weight plus dry solids = 22.5463 grams
  - 274 mg/L
  - 180 mg/L
  - 108 mg/L
  - 430 mg/L
- Which list of equipment is most appropriate to use for separating a sample containing solids in a mixture?
  - Filtering flask, glass fiber filter, separatory funnel, vacuum apparatus
  - Filtering flask, glass fiber filter, Buchner funnel, muffle furnace
  - Kjeldahl flask, glass fiber filter, separatory funnel, Gooch crucible
  - Filtering flask, glass fiber filter, Gooch crucible, vacuum apparatus
- A wastewater final effluent sample is inoculated with lauryl tryptose broth and incubated for 48 hours at 35°C. The results show gas production and a color change most likely due to fermentation. The most appropriate next step is to
  - Inoculate with EC broth, incubate for another 24 hours at 44.5°C and calculate fecal MPN
  - Incubate for another 24 hours until gas production ceases and calculate fecal MPN
  - Discard sample tubes as this result denotes no coliform present.
  - Immediately calculate the fecal MPN before fermentation stops.
- What reagent is used to extract materials such as oil and grease from a wastewater sample, also known as HEM?
  - Freon
  - Hydrogen ions
  - Hexane
  - Sodium sulfate
- What physical apparatus can be used in the field to test for clarity?
  - Clarity flask
  - Sludge blanket level indicator
  - Total solids meter
  - Secchi disk

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](mailto:tmj@nywea.org), or visit [www.nywea.org/OpCert](http://www.nywea.org/OpCert).

Answers from page 60: 1 A, 2 B, 3 C, 4 C, 5 D, 6 C, 7 C, 8 A, 9 D, 10 A,