



Certification Boulevard

Test Your Knowledge of Collections & Distribution – answer key

1. What is the most important reason why the pumps in a Lift Station should not experience frequent starts and stops?
 - a. Not enough time for the pumps to be primed
 - b. Because of the power surge problems
 - c. Ultimately will result in premature failure of the check valve assembly
 - d. **Ultimately will result in premature failure of the motor winding insulation**

2. What should be done when a mechanical seal develops a leak?
 - a. It needs a new o-ring
 - b. Never repair it ... just replace it with a new one
 - c. **May require re-lapping or it may have to be replaced**
 - d. Something is wrong with the stuffing box

3. Given the following data, how many cubic yards of backfill are needed to fill a trench?
 - 5.25 feet wide
 - 14 yards long
 - 5.5 feet deep
 - a. 62 yd³
 - b. **45 yd³**
 - c. 95 yd³
 - d. 18 yd³

Cu. Yards = 5.25 feet wide x (14 yards long x 3 feet per yard) x 5.5 feet deep ÷ 27 ft³ per yd³
= 44.92 yd³

4. Water seeping into a collection system pipe is called exfiltration. *True or **False***

Waste leaking out of a collection system pipe is called exfiltration
Water seeping into a collection system pipeline is called infiltration.

5. What type of machine is used to construct collection system pipelines when they are too difficult for trench excavations?
 - a. Pig
 - b. TV Device
 - c. **Boring Machine**
 - d. Backhoe Machine

6. What is the pipeline called that is installed on the discharge side of a sewage pump?
- Suction
 - Sump
 - Gravity
 - Force main**
7. Which type of sewer system contains both sanitary wastewater and storm water?
- Domestic wastewater system
 - Combined sewer system**
 - Separate collection system
 - Sewer system evaluation survey
8. Given the following data, what is the capacity of this wet well?
- wet well diameter is 15 feet
 - bottom elevation of wet well is 82.71 feet
 - top elevation of wet well is 99.85 feet
- 22,645 gallons**
 - 222,645 ft³
 - 332,043 ft³
 - 44,391 gallons

$$\begin{aligned}
 \text{Liquid depth in wet well} &= 99.85 \text{ feet} - 82.71 \text{ feet} = 17.14 \text{ feet} \\
 \text{Gallons Capacity} &= 0.785 \times \text{diameter}^2 \times \text{depth} \times 7.48 \text{ gal per ft}^3 \\
 &= 0.785 \times 15 \text{ feet} \times 15 \text{ feet} \times 17.14 \text{ feet} \times 7.48 \text{ gal per ft}^3 \\
 &= 22,644.6 \text{ gallons}
 \end{aligned}$$

9. Which gas will be located at the highest point of a manhole?
- Carbon dioxide
 - Hydrogen sulfide
 - Methane**
 - None – they will all be at low levels
10. When a flap gate is mounted in a pipe, the flow will be allowed to travel in both directions? *True or **False***

A flap gate allows flow to travel in one direction only.

Thanks to my friend and counterpart, Ron Proulx, Assistant Division Manager, City of Orlando Public Works Department - Environmental Services Wastewater Division, for providing questions 1 and 2. Roy

Please forward your comments and sample questions for publication to:

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