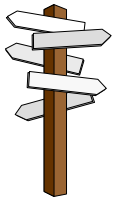
Certification Boulevard



Test Your Knowledge of Water Supply Topics

1. What is the velocity in cubic feet per minute (cfm) of a 1 mgd stream of water?

    a. 1.55 cfm
    b. 8.34 cfm
    c. 7.48 cfm
    d. 92.84 cfm

    1,000,000 gpd divided by 1,440 mins/day divided by 7.48 gal/cu.ft. = 92.84 cfm/mgd

2. If the discharge head on an electrically driven vertical turbine pump increases, what does the motor current do?

    a. It remains the same
    b. It goes up
    c. It goes down
    d. It will oscillate

    Many people intuitively think if the discharge pressure rises the motor does more work, therefore, the current must go up. Of course raising the discharge pressure on a centrifugal pump lowers the discharge flow, therefore, the pump actually does less work and the current goes down.

3. When pumping water from a well to a treatment process, the Total Dynamic Head is the sum of four (4) components, list these components:

    a. Friction Head
    b. Suction Head
    c. Static Head
    d. Velocity Head

4. Which repair kit is designed for use with 150-pound chlorine cylinders?

    a. "A" kit
    b. "B" kit
    c. "C" kit
    d. None of the above

5. What units are used to measure Ultraviolet dosage?

    a. millirems/volt
    b. mg/l
    c. lumens
    d. mJ/cm^2

UV dose is measured as energy per unit area, in this case milli-joules per square centimeter. UV Radiation is growing as an important disinfection tool for water systems and many operators are unfamiliar with UV terminology and operation.

6. Given the following data, calculate the approximate horsepower delivered by this pump:

    - Flow is 3,500 gpm
    - TDH is 175 feet
    - Does not consider pump and motor efficiency

    a. 20 HP
    b. 18 HP
    c. 175 HP
    d. <u>155 HP</u>

    Horsepower = (gpm x TDH, feet x 8.34 lbs/gal) ÷ 33,000 foot lbs/second
    3,500 gpm x 175 TDH x 8.34 lbs/gal ÷ 33,000 = 155 HP

7. What will a pressure gauge read located on the suction of a pump if the pump is at floor elevation of the tank and the tank has 30 feet of static water level?

    a. About 69 psi
    b. About 9.5 psi
    c. <u>About 13 psi</u>
    d. About 17 psi

    Each foot of water generates 0.433 psi (1 ÷ 2.31 … 2.31 feet of head per 1 psi)
    30 feet of water x 0.433 psi = 12.99 psi

8. Water with high alkalinity must also have:

    a. High pH
    b. Low pH
    c. Neutral pH
    d. <u>None of the above</u>

    There is not necessarily a correlation between high alkalinity and pH.

9. If a gallon of water weighs 8.34 lbs, and a cubic foot of water holds 7.48 gallons … how much does a cubic foot of water weigh?

    a. 92.4 lbs
    b. 89.6 lbs
    c. <u>62.4 lbs</u>
    d. 3.14 lbs

    8.34 lbs/gal x 7.48 gal/ft^3 = 62.4 lbs/ft^3

10. A potable water flow meter reads 83 gpm for 13 hrs/day and 47 gpm for the remaining 11 hrs/day. What is the total daily flow in mgd?

    a. 0.64740 mgd
    b. 0.09576 mgd
    c. 0.03102 mgd
    d. 0.1870 mgd

(83 gpm x 13hrs/day x 60 mins/hr) + (47 gpm x 11 hrs/day x 60 mins/day)
64,740 gpd + 31,020 gpd = 95,760 gpd ÷ 1,000,000 = 0.09576 mgd

Please forward your comments and sample questions for publication to:

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