**Driver Operator Pumper 2023**

**Study Guide**

1. Describe an FDC.
2. Describe the procedure to open a hydrant.
3. Describe the criteria that determines when a pressure-regulating valve must be installed on a sprinkler system.
4. Describe the procedure for changing over from tank operations to hydrant operations (allowable pressure fluctuation).
5. Identify the factors determining test site for a pump test.
6. Identify the factors determining engine placement for relay pump operations.
7. Identify NFPA 1901 requirements for pumpers.
8. Identify three factors for determining a water source for drafting.
9. Describe the military’s role for determining the ratio of foam concentrations used when applying foam.
10. Define the following:
    1. Private water supply system.
    2. Flow pressure.
    3. Static pressure.
    4. Residule pressure.
    5. British thermal unit (BTU).
    6. Hand method.
    7. Nozzle reaction.
    8. Nozzle pressure.
11. Identify NFPA 1911 requirements for fire pump testing.
12. Identify how apparatus placement on an incident is determined.
13. Explain the difference between fireground hydraulics and theoretical hydraulics.
14. Identify who determines the proportioning ratio when a system is tested.
15. Describe the procedures for a relay pumping operation.
16. Describe options for supplying a standpipe when the FDC is damaged or inaccessible.
17. Explain the coloring system used to identify hydrant flow rates.
18. Explain the concept water flow rate versus heat generation.
19. Identify the limitations of foam.
20. Explain the difference between a forward hose lay and a reverse hose lay.
21. Know how to use the following formulas:
    1. Q = L x W x D x C (U.S. measurement)
    2. gpm = 29.7 x x
22. Identify the four components needed to make foam.
23. Describe the procedures for setting up the pump of the engine for pumping operations.
24. Identify the factors that affect friction loss.
25. Identify the pressure that should be maintained at a sprinkler system FDC.
26. Explain the difference between a calculated pressure relay and a constant pressure relay.
27. Describe the procedure initiating pump operations from the water tank.
28. Describe the characteristics of fluoroprotien foam.
29. Explain how elevation gains affect pump discharge pressures.
30. Describe procedures to keep the pump from overheating during overhaul operations.
31. Describe how a foam eductor works.