

**R5 North Zone Engine Academy**  
**Pre-Work – (50 pts)**

1. Name the following valve numbers and functions of each, found on a Model 62, as adopted by the USDA Forest Service: (20 pts) Be Specific!

Valve #	Name	Function
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

2. To pump water through a 1-1/2” line from a pond to a fire, what valves must be opened. (1 pt)

\_\_\_\_\_

3. To keep a Model 62 engine with a full tank of water ready during freezing weather, which valve/valves should be closed? (1 pt)

\_\_\_\_\_

4. How many inches of vacuum are necessary to lift water six feet? (1 pt)

\_\_\_\_\_

5. A Model 62 engine has a: (1 pt)

- A. Single Stage Positive Displacement Pump
- B. Two-Stage Centrifugal Pump
- C. Four-Stage Centrifugal Pump
- D. Three-Stage Positive Displacement Pump

6. A positive displacement pump should have a pressure relief valve. (1 pt)

- A. TRUE
- B. FALSE

7. What do the following abbreviations mean? (6 pts)

GVWR – \_\_\_\_\_

NPSH – \_\_\_\_\_

NH – \_\_\_\_\_

GPM – \_\_\_\_\_

PSI – \_\_\_\_\_

CJRL – \_\_\_\_\_

8. When testing fire hose, the total length of each line tested shall not exceed: (1 pt)

\_\_\_\_\_

9. When drafting with a Model 62, what is the *primary* concern when using 2 1/2" hard suction hose? (1 pt)

- A. Volume
- B. Elevation
- C. Cavitation
- D. Water Depth

10. How many gallons of water are contained in a 100 ft. section of 1-1/2" hose? (1 pt)

\_\_\_\_\_

11. Three PSI will lift water \_\_\_\_\_ feet. (1 pt)

12. Explain friction loss. (1 pt)

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13. What is the atmospheric pressure at sea level on a standard day? (1pt)

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14. Friction loss decreases as flow (GPM) \_\_\_\_\_. (1 pt)

15. A “Floto-Pump” is a self-priming pump and can be started before it is set in water. (1 pt)

- A. TRUE                      B. FALSE

16. When drafting from a stream, the suction screen should be deep enough to maintain a prime. (1 pt)

- A. TRUE                      B. FALSE

17. Which of the following conditions can cause cavitation in a pump? (1 pt)

- A. Rising water temperature in your pump  
B. A blocked or inadequate suction strainer  
C. Using too small or too long a suction hose  
D. \_\_\_\_\_(Your Answer)

18. With a manual 5 speed transmission and a 2-speed axle, it is standard procedure to split shift while descending a grade. (1 pt)

- A. TRUE                      B. FALSE

19. After off-road use with a Type 3 fire engine, it is advisable to check for rocks between the duals and for possible tire sidewall damage. (1 pt)

- A. TRUE                      B. FALSE

20. A backup person is only required when you cannot see behind the engine. (1 pt)

- A. TRUE                      B. FALSE

21. What is the proper position of your hands on the steering wheel of a Type 3 fire engine? (1 pt)

\_\_\_\_\_

22. Diesel engines are naturally oily, therefore leaks are to be expected. (1 pt)

- A. TRUE                      B. FALSE

23. Give a probable cause of a “howling, squealing” fan belt. (1 pt)

\_\_\_\_\_

24. What kind of contamination in the fuel system is a common cause of diesel engine failure? (1 pt)

\_\_\_\_\_

25. Give four examples of minor **maintenance** that you may encounter during a pre-trip or weekly inspection. (2 pts)

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |