Pretest Furnace Control Information Section

1. What are the three types of fuels?

2. What is combustion?

3. Will liquid fuels burn?

4. What is atomization?

5. What type of atomization is found in standard residential oil burners?

6. What is the pressure of the oil pump in a standard residential oil burner?

7. How is the spark provided for ignition in an oil burner?

8. What is the typical operating voltage of the ignition transformer in an oil burner?

9. How high above the floor must a conductor be before it will not require mechanical protection?

10. Why is a disconnect switch typically placed at the furnace unit?

11. Where is an emergency switch typically installed?

12. What type of switch is used for the emergency switch on an oil burner?

13. What type of cover plate is required for an emergency switch?

14. What voltage is typically used for the control wiring in an oil burner?

15. What are the three main controls on an oil burner?

16. What are the two functions of the limit control on a hot air furnace?

17. What function of a hot air furnace is stopped by the high limit control?

18. What is the purpose of limit control on a hot air furnace?

19. How is the fan controlled in the summer to circulate air?

20. What temperature is the high-limit control set at in a hot air furnace?

21. What is the purpose of the primary control in a furnace system?
22. What are the two types of primary controls?
23. Which ignition system is energized for a predetermined time period?
24. Which ignition system is energized all the time the burner is operating?
25. Which component in a furnace system will prove the presence of flame?
26. What are the two methods for detecting a flame?
27. How are the “hot/cold” contacts reset in a thermal primary control?
28. How long will the burner operate in a furnace system controlled by a stack switch if no ignition is detected?
29. Why should a primary control not be reset several times without correcting the problem?
30. What is a cadmium sulfide cell?
31. How is a cad cell accessed for cleaning or inspection?
32. What is the result of a cad cell sensing light before a burner starts?
33. Which component in a hydronic heating system is the equivalent of a high limit control in a hot air system?
34. Which component in a hydronic heating system is the equivalent of fan blower in a hot air system?
35. What is a direct acting aquastat? What is a reverse-acting aquastat?
36. Which aquastat provides more accurate control?
37. What is low-limit protection for a circulator?
38. What is high-limit protection for a hot water system?
39. How do combination controls (dual aquastat) sense temperature?
40. What is the main disadvantage of a combination control?
41. What is done with the thermostat terminals on a primary control when the thermostat is connected through a combination control?

42. What are the typical settings for an oil fired water heater?

43. What is the purpose of the magnesium anode in a water heater?

44. What is the purpose of a dip tube?

45. What is the purpose of a delayed-oil valve?

46. How are the two units in a combination wood/oil furnace operated without both coming on at the same time?

47. What is the advantage of an add-on wood/oil unit compared to a single unit?

48. How is the burning rate of solid fuel controlled?

49. Where must the 120/24 V transformer be connected in the wood add-on unit for an oil furnace? Why?

50. What is a two-stage thermostat and how does it work?

51. Is it possible to control a combination wood/oil furnace by two separate thermostats?

52. What is an interlocking relay used for?

53. Other than wood/oil, what other combination is used for furnaces?

54. What does the room thermostat control in a zoned hydronic system?

55. In an-oil fired zoned hydronic system, what two components control the circulator?

56. How is the burner controlled in a zoned hydronic system?

57. At what point in the operating cycle of a zone valve does the end switch operate?

58. What is the most important factor in troubleshooting an oil furnace?
59. What are the three types of complaints for a malfunctioning oil furnace?

60. Which complaints are electricians qualified to address?

61. What is the first check for a “no go” furnace if the overcurrent device is intact?

62. What is the next check after the emergency switch is eliminated?

63. If a furnace runs when the terminals “TT” are shorted but stops when they are open, what is the next check?

64. How will an oil burner operate if the cad cell is faulty or dirty?