Fire Behavior

1. What starts to play a greater role during the growth phase of a room-and-contents fire? p. 153

A.) Conduction
B.) Convection
C.) Direct contact
*D.) Radiation

2. In what direction will major fire growth occur in a solid-fuel fire during the growth phase? p. 150

A.) All directions
B.) Downward
C.) Laterally
*D.) Upward

3. What affects the color of the flame? p. 142

A.) Area that is burning
*B.) What is burning
C.) Amount of oxygen
D.) Stage of the fire

4. What are completely burned particles primarily? p. 145

A.) Smoke
B.) Tar
C.) Steam
*D.) Ash

5. What type of fire spread is occurring when flying embers land on a wooden roof? p. 146

*A.) Direct contact
B.) Convection
C.) Radiation
D.) Conduction

6. What is needed to unite the elements from the fuel triangle? p. 144

A.) Heat
B.) Oxygen
C.) Fuel
*D.) Chemical chain reaction

7. What material burns with the same dark black smoke as carpet? p. 153

A.) Oil
B.) Wallpaper
*C.) Tires
D.) Plastic

8. What is the third step taken when reading the smoke? p. 160

A.) Predict the event
B.) Determine the key attributes of the smoke
*C.) Determine the rate of change
D.) Determine what is influencing the key attributes

9. Approximately what temperature must be present for flashover to occur? p. 154

A.) 900 degrees Fahrenheit (480 degrees Celsius)
B.) 700 degrees Fahrenheit (370 degrees Celsius)
*C.) 1000 degrees Fahrenheit (540 degrees Celsius)
D.) 800 degrees Fahrenheit (430 degrees Celsius)

10. Within what timeframe can furniture with resistance to heat become completely involved in fire? p. 153

A.) 1-3 minutes
B.) 5-7 minutes
*C.) 3-5 minutes
D.) 7-9 minutes

11. In which situation will all combustible contents in a room ignite at once? p. 153

A.) Backdraft
B.) Rollover
*C.) Flashover
D.) Flameover

12. What is present at the top of a propane tank is half-full and sealed? p. 158

*A.) Vapor
B.) Liquid
C.) Condensation
D.) Air

13. What attribute of smoke suggests how much pressure is accumulating in the building? p. 159

A.) Color
*B.) Velocity
C.) Density
D.) Volume

14. What should be used to prevent flashover? p. 152

*A.) Hose stream
B.) Reducer
C.) Chemical agent
D.) Pike poles

15. What material is usually on the back of carpets today? p. 153

A.) Vinyl
B.) Bitumen
C.) Polyester
*D.) Polypropylene

16. Initially what color smoke is seen when plastics and painted or stained surfaces burn? p. 160

A.) Black
*B.) Gray
C.) Yellow
D.) Green

17. What is the rapid chemical process that results in heat and light when a substance combines with oxygen? p. 145

*A.) Combustion
B.) Pyrolysis
C.) Decomposition
D.) Oxidation

18. What are the byproducts of incomplete combustion collectively called? p. 145

A.) Tar
*B.) Smoke
C.) Soot
D.) Steam

19. What is the most commonly encountered solid fuel? p. 149

A.) Steel
*B.) Wood
C.) Fiberglass
D.) Plastic

20. Where is the fire probably located when you open a door and smoke exits through the top half of the door and fresh air enters through the bottom half of the door? p. 161

A.) One level below
B.) One level above
*C.) On the same level
D.) On the rooftop

21. What are most uncontrolled fires fed by? p. 142

*A.) Solid fuel
B.) Liquid fuel
C.) Plasma fuel
D.) Gaseous fuel

22. What direction does thermal radiation from a fire travel? p. 147

A.) Windward
B.) Leeward
*C.) All directions
D.) Upward

23. In what form is most of the fuel in a flashover? p. 158

A.) Solid
*B.) Smoke
C.) Liquid
D.) Semi-solid

24. Which condition requires a room or building that has a limited supply of oxygen? p. 155

*A.) Backdraft
B.) Thermal layering
C.) Flashover
D.) Flameover

25. Below what oxygen concentration will open-flame burning decrease? p. 154

*A.) 16 percent
B.) 20 percent
C.) 22 percent
D.) 18 percent

26. What measurement refers to the weight of a gas fuel as compared to air? p. 157

A.) Viscosity
B.) Volatility
*C.) Vapor density
D.) Flammability

27. What are almost all fuels composed of? p. 144

A.) Carbon and nitrogen
B.) Sulfur and magnesium
*C.) Hydrogen and carbon
D.) Oxygen and hydrogen

28. Which type of fire cannot be attacked with water? p. 149

A.) Class A
*B.) Class D
C.) Class B
D.) Class C

29. How do layers of gases in an enclosed space tend to form layers? p. 155

A.) According to their weight
*B.) According to their temperature
C.) According to their toxicity
D.) According to their contents

30. What type of energy is caused by electromagnetic waves packaged in discrete bundles called photons? p. 143

A.) Nuclear
B.) Mechanical
*C.) Light
D.) Chemical

31. What is the flammability of a liquid determined by? p. 157

A.) Average ignition temperature
*B.) Lowest ignition temperature
C.) Meade ignition temperature
D.) Highest ignition temperature

32. What is the spontaneous ignition of hot gases in the upper levels of a room or compartment? p. 155

A.) Flashover
*B.) Flameover
C.) Backdraft
D.) Thermal layering

33. Which material is a better conductor of heat? p. 146

A.) Fiberglass
B.) Wood
*C.) Metal
D.) Glass

34. Which material has the lowest flash and flame point? p. 157

A.) Diesel fuel
*B.) Gasoline
C.) SAE 10 motor oil
D.) Ethanol

35. Which type of energy is converted into heat when two materials rub against each other and create friction? p. 143

A.) Electrical
B.) Chemical
C.) Light
*D.) Mechanical

36. What will contribute fuel to the room-and-contents fire in a noncombustible room? p. 153

*A.) Contents
B.) Structure
C.) Exterior
D.) Oxygen

37. Where does the United States rank among the 25 developed countries that keep fire statistics in mortality rates from fires? p. 142

A.) Tenth
*B.) Eighth
C.) Twentieth
D.) Fifteenth

38. Through which of the following is fire rarely primarily spread? p. 146

A.) Direct contact
B.) Convection
C.) Radiation
*D.) Conduction

39. Within what amount of time will an average-sized furnished room with an open door be completely involved in flashover? p. 154

*A.) 5 to 10 minutes
B.) 9 to 13 minutes
C.) 10 to 15 minutes
D.) 3 to 7 minutes

40. Which toxic gas found in smoke was used to kill convicted criminals in gas chambers? p. 145

A.) Hydrogen chloride
B.) Carbon dioxide
*C.) Hydrogen cyanide
D.) Phosgene

41. During which phase is additional fuel drawn into the fire? p. 153

A.) Ignition
B.) Decay
C.) Developed
*D.) Growth

42. Which is **NOT** a correct statement about wood as a solid fuel? p. 150

A.) The speed with which a solid fuel burns is related to the amount of surface that is exposed
B.) Fuels with more moisture burn more slowly than fuels with less moisture
C.) The greater the ratio of surface area to mass, the faster the wood will ignite and burn
*D.) A thing piece of wood burns quickly because a small surface area is exposed to the heat

43. What characteristic will suggest how much fuel is in the smoke? p. 160

*A.) Thickness
B.) Flow pattern
C.) Volume
D.) Coloration

44. What is the primary factor in spreading a solid-fuel fire upward? p. 152

A.) Conduction
B.) Direct contact
C.) Radiation
*D.) Convection

45. What characteristic of white smoke would differentiate between an early fire burn and a hot fire that has traveled? p. 160

A.) Smells associated with the smoke
*B.) Type of movement of the smoke
C.) General volume of smoke present
D.) Color variations in the smoke

46. What method is most often used to extinguish a fire? p. 148

A.) Interrupt the chemical chain reaction with a flame inhibitor
B.) Exclude oxygen from the fire
C.) Remove the fuel source
*D.) Cool the burning material

47. What needs to be cooled to prevent a BLEVE? p. 158

A.) Seals on the tank
B.) Bottom of the tank
*C.) Top of the tank
D.) Middle of the tank

48. What is a fully-developed fire burning outside limited by? p. 152

A.) Available oxygen
B.) Topography
C.) Atmospheric conditions
*D.) Available fuel

49. Which class of fire involves flammable or combustible liquids? p. 148

*A.) Class B
B.) Class A
C.) Class D
D.) Class C

50. Which is **NOT** correct about a fire in the decay phase? p. 154

*A.) The amount of toxic gases produced decreases
B.) The temperature in the compartment will start to decrease
C.) The compartment may remain dangerous despite the fire appearing to be under control
D.) The fire will eventually go out when all fuel is consumed

51. What causes the decay phase in newer constructed homes? p. 156

A.) Ventilation
*B.) Lack of oxygen
C.) Increased thermal radiation
D.) Reduction in fuel

52. In what amount of time was it found that temperatures rose from 480 degrees Fahrenheit to 1110 degrees Fahrenheit (250 degrees Celsius to 600 degrees Celsius) during flashover in controlled experiments performed by Underwriters Laboratories? p. 155

A.) Less than 6 minutes
B.) Less than 5 minutes
C.) Less than 4 minutes
*D.) Less than 3 minutes

53. What extinguishing method is most commonly used to extinguish Class A fires? p. 148

A.) Break the chemical reaction
B.) Remove fuel from the fire
*C.) Cool the fuel with water
D.) Exclude oxygen

54. What characteristic of liquids allows fire fighters to pump water for long distances through pipelines? p. 143

A.) It assumes the shape of the container
*B.) It cannot be compressed for all practical purposes
C.) It converts to gas when heated
D.) It expands when heated

55. What has a very small effect on interior fires but may drive exterior fires? p. 156

A.) High flame temperature
*B.) Decreased humidity
C.) Increased humidity
D.) Low flame temperature

56. What must be done first when battling a Class C fire? p. 149

A.) Isolate the area
B.) Cover the fuel
*C.) Cut the power
D.) Apply water

57. What triggers a backdraft when the conditions are right? p. 155

A.) Increase in temperature
B.) Application of water
*C.) Introduction of oxygen
D.) Removal of fuel

58. What are convection currents affected by in structure fires? p. 147

A.) Construction type
*B.) Building layout
C.) Ambient temperature
D.) Altitude

59. In what state must a solid fuel be to burn? p. 150

*A.) Vapor
B.) Liquid
C.) Plasma
D.) Solid