PREP TEST
STRUCTURE

1. The foundation of the home should?
   A. Be watered regularly.
   B. Have reverse grading.
   C. Not be part of the home Inspection
   D. Anchor it in place.
   E. Be designed only for anticipated live loads.

2. Foundation Walls
   A. a. Must resist lateral pressure from basement sides.
   B. Support the structure and connect to the footing
   C. Vary inversely in thickness based on underground depth.
   D. should be totally underground
   E. None of the above

3. Wall cracks develop because?
   a. The wall has settled
   b. The wall has heaved
   c. The wall has been overloaded
   d. All of the above
   e. None of the above.

4. Foundation wall penetration
   a. Should never be below grade
   b. Should be reported if leakage signs exist
   c. May cause a wall to crack
   d. Should never be below the frost line
   e. Both B and C above.

5. “Structure” as used in the ASHI Standards mean
   a. Slab
   b. Floor Frame
   c. Wall frame
   d. Piers
   e. Combination of all of the above

6. A “Header” is
   a. A fall from scaffolding by a construction worker
   b. Used to transfer span loads over or around openings
   c. An extra Joist added to support additional loads
   d. A full length joist that is doubled to carry additional load
   e. A and/or C above
7. Water in the basement  
   a. Should pond to one side only  
   b. May be detected by efflorescence  
   c. May be caused by hydrostatic pressure forcing water through cracks  
   d. B and C  

8. Perimeter Vents are  
   a. Preferable installed in two opposite walls for cross ventilation.  
   b. Usually found in basement walls  
   c. For moisture reduction  
   d. Replacements for basement windows.  
   e. A and C  

9. Water may be removed from basements by  
   a. A sump and pump  
   b. Perimeter wall drainage  
   c. Mechanical dehumidification.  
   d. All of the above may be used  
   e. A and C only  

10. A crawl space inspection  
    a. Is required by ASHI standards for all crawl spaces with an entrance at least 36” high.  
    b. is completely different from basement inspections  
    c. Should not be conducted if polyethylene sheeting is installed on crawl space floor.  
    d. Should reveal insulation with the aluminum moisture layer facing the warm floor.  
    e. A and D  

11. Interior basement stairways should have  
    a. Adequate lighting illumination.  
    b. A tightly connected and properly sized handrail  
    c. Risers of equal heights  
    d. Adequate ceiling heights  
    e. All of the above
12. A retaining wall  
   a. Does not resemble a foundation  
   b. Does not need openings to relieve hydrostatic pressure  
   c. Is used to prevent soil movement  
   d. Is not associated with landform  
   e. None of the above  

13. Path and walkways should  
   a. Be at least 30” wide  
   b. Not contain tripping hazards  
   c. Not be above grade  
   d. Pitch towards the driveway  
   e. Not be inspected for hazards  

14. Ponds and Lakes near a house  
   a. Enhance the selling price  
   b. Reflect the natural water table level.  
   c. Mean that water problems should be looked for  
   d. Have no significance to an inspector  
   e. Both B and C  

15. The function of a footing is?  
   a. Provide lateral support for foundation walls  
   b. Transmit the weight of the house to the soil.  
   c. Provide support for the basement floor slab  
   d. Resist hydrostatic pressure.  

16. The most common symptom of footing failure is?  
   a. Sagging floors  
   b. Basement leakage  
   c. Cracking in foundation walls.  
   d. Cracking above windows  
   e. Bowing foundation walls.  

17. Where movement due to footing problems has been detected, future settlement can be predicted by:  
   a. A visual inspection  
   b. Knowing the type of foundation material  
   c. Knowing when cracks were repaired last.  
   d. Never  
   e. Knowing the depth of the footing.
18. Foundation walls for wood-frame houses have adequate lateral support, provided that
   a. The floor system is properly secured to the top of foundation walls.
   b. The foundation walls are of sufficient thickness.
   c. The height of the grade outside the foundation walls is not excessive.
   d. The exterior walls are brick veneers.
   e. A, B and C above.

19. When installing a basement stairwell, an important consideration often overlooked is?
   a. Stairways too narrow.
   b. Potential for termite infestation.
   c. Frost penetration to the soil below the footing.
   d. Hand rail on stairs.
   e. Damage to foundation walls.

20. In slab on grade construction, the top of the foundations should be how far above
    grade in order to protect the exterior wall structure and finishes from moisture.
   a. 2 inches
   b. 4 inches
   c. 8 inches
   d. 12 inches
   e. 16 inches

21. When lowering a basement floor, if the soil is excavated only to the bottom of the
    footing (not below the footing), which problem may have been created?
   a. Inadequate end bearing for floor joist.
   b. Excessive grade height.
   c. Disturbed soil below footing.
   d. Insufficient footing width.
   e. Lost lateral support for the footing.

22. The function of a sill plate is to:
   a. Prevent twisting of floor joist.
   b. Connect the floor framing system to the top of the foundation.
   c. Support the wall system.
   d. Provide a moisture barrier between the floor system and the foundation wall.
   e. Keep the wall below a window dry.

23. The minimum end bearing for beams is typically
   a. 1 3/8 inch
   b. 2 1/8 inch
   c. 3 1/8 inch
   d. 3 5/8 inch
   e. 4 3/8 inch
24. Post in basements must bear on
   a. The basement floor
   b. A moisture barrier
   c. Well compacted granular fill
   d. A 4-inch by 4-inch bearing plate.
   e. A proper footing.

25. For a stairway opening in which 4 floor joist (spaced 16 inches on center) were cut, the trimmer joist and header joist respectively should be
   a. Doubled and singled
   b. Single and doubled
   c. Doubled and engineered
   d. Doubled and doubled
   e. Engineered and doubled.

26. A solid masonry wall can visually be identified by
   a. Header courses
   b. Metal ties
   c. Steel lintels
   d. a cavity space
   e. Specialized sized bricks.

27. Brick can be corbelled a max of 1 inch beyond the row of bricks below. However, the total corbelling must not exceed
   a. One half the wall thickness
   b. One-third the wall thickness.
   c. One quarter the wall thickness
   d. The thickness of the brick
   e. The width of the brick.

28. A load bearing stud wall has
   a. A single top plate and a double top plate.
   b. A single top plate and a single top plate.
   c. A double top plate and a single sole plate.
   d. A double top plate and a double sole plate.
   e. A double top plate and a triple sole plate.

29. In a balloon framing, the wall studs
   a. Are continues from the sill plate to the rafters.
   b. Extend only the height of the floor level.
   c. Are spaced 24 inches apart, typically.
   d. Are 2” by 6” dimensions, typically.
   e. Rest on the top of the floor joist.
30. A more immediate concern of a leaning or bowing solid masonry wall is
   a. Failure of the wall
   b. Moisture penetration to the wall cavity.
   c. Unsafe end bearing for joist.
   d. Cracks occurring in the wall.
   e. Loose bricks falling off the wall.

31. Rafters spread can be visually identified by
   a. Soffits pulling away from the house wall.
   b. A wavy appearance to the roof.
   c. Cracking of interior finishes below the ceiling joist.
   d. Cracking in the rafters
   e. Buckling of collar ties.

32. Collar ties are installed in roof framing to
   a. Prevent rafter spread.
   b. Provide lateral support for the top of the walls.
   c. Allow for installation of dormer roofs.
   d. Support the end walls of gable roofs.
   e. Prevent rafters from sagging.

33. A roof truss which has been cut in order to accommodate a skylight can be
    resupported by
   a. A skillful contractor with great experience.
   b. Applying rules of thumb from building codes.
   c. Special engineering design.
   d. Double trusses on either side of the skylight opening.
   e. No special consideration necessary.

34. Truss uplift is believed to be caused by:
   a. Using green lumber
   b. A differential in humidity levels within an attic.
   c. Mixing different types of trusses in an attic space.
   d. Insufficient attic insulation.
   e. Improper attaching drywall to the ceiling of the top floor.
Exterior

35. What are the main function of gutters and downspouts?
   a. Protect the roof edges.
   b. Keep basements dry.
   c. Protect walls and windows during drains.
   d. Keep people dry while they are fumbling for their keys at the front door.
   e. B and C

36. Which of the following is not a typical gutter material?
   a. Aluminum
   b. Copper
   c. Brass
   d. Galvanized steel
   e. Plastic.

37. It is preferable to have downspouts discharge below grade rather than above grade.
   a. True
   b. False

38. An inspection cannot determine the function and adequacy of in ground drains.
   a. True
   b. False

39. A desirable slope for grading around the house is:
   a. 1 in 2
   b. 1 in 6
   c. 1 in 12
   d. 1 in 20
   e. None of the above.

40. At what distance out from the house should the grading be maintained?
   a. 2 feet
   b. 4 feet
   c. 6 feet
   d. 10 feet
   e. 14 feet.
41. With which of the following symptoms can an inspector determine the rate of erosion on a ravine?
   a. A tree leaning.
   b. Tree roots exposed.
   c. Leaning retaining walls
   d. Horizontal gaps between sections of grass or brush with topsoil exposed and nothing growing.
   e. It is not possible to determine the rate of erosion in a one-time visit.

42. The strength of mortar in brick walls should compare to the brick in what way?
   a. Slightly stronger
   b. Similar to but not greater than.
   c. Slightly weaker.
   d. Twice as strong.
   e. None of the above.

43. Stucco over wood framing will exhibit significantly fewer cracks than stucco over masonry walls.
   a. True
   b. False

44. Stucco cracks and bulges often appear near floor levels because
   a. These areas lack insulation
   b. Wood framing shrinks most in these areas
   c. Effects of live loads.
   d. None of the above.
   e. All of the above.

45. How far should wood siding be above soil?
   a. 4 inches
   b. 6 inches
   c. 8 inches
   d. 10 inches
   e. 16 inches

46. Which of the following is not a component of insulbrick siding?
   a. Mortar
   b. Fiberboard
   c. Tar
   d. Granular
   e. Nails
47. If a basement walk out is to be added to the house, alterations of what parts of the structure may be necessary?
   a. Sill plate.
   b. Floor joists.
   c. Wood frame wall above.
   d. Deeper footing near the walk out.
   e. None of the above.

48. What causes buckling in vinyl or aluminum siding?
   a. Thermal expansion
   b. Nailing too tightly
   c. Impact damage
   d. Too few nails
   e. A and B

49. As they rust steel lintels over doors and windows in masonry walls will
   a. Break the window glass
   b. Push the wall out
   c. Generate horizontal cracks in the mortar joints at the top corners of the windows.
   d. Rotate inward, displacing the brick above.
   e. None of the above.

50. How do you determine whether stucco has been applied over a wood frame or masonry structure?
   a. Use a moisture meter
   b. Inspect from the crawl space
   c. Tap on it.
   d. Create a small hole in the stucco
   e. Both A and C above.

51. With the exception of wood, all types of retaining walls should have weep holes.
   a. True
   b. False

52. The soffit is the horizontal trim covering the underside of an eave system.
   a. True
   b. False

53. The fascia is used to support the gutter system and enclose the ends of the eaves.
   a. True
   b. False
54. The saddle or cricket is part of
   a. The gutter or downspout assembly.
   b. A window flashing system.
   c. A garage door opener.
   d. A chimney flashing.
   e. A plumbing stack.

55. The primary purpose of siding as an exterior is to
   a. Strengthen the framework.
   b. Enhance the appearance of the house.
   c. Protect the framework from the wind and weather.
   d. Provide a surface for paint.
   e. None of the above.

56. Building paper is used
   a. To trap moisture between the sheathing and the siding
   b. To provide water resistance and an air barrier.
   c. As structural element.
   d. To lubricate and allow small dimensional changes of adjacent wooden elements.
   e. Both B and D

57. Plywood sheathing is commonly used
   a. To brace the framework and provide shear.
   b. As a base for interior insulation.
   c. To provide a good finish surface.
   d. To prevent dry rot.

58. Proper fastening of wooden planks is important because
   a. Planking must expand and contract without splitting.
   b. It increases warping, checking and cupping.
   c. Double nailing enhances moisture and temperature expansion and contraction.
   d. It increases the tendency of nails to back out.
   e. None of the above.

59. Dimensional changes in temperature.
   a. Are due to changes of moisture content.
   b. Are greater in length than in width.
   c. Are not affected by surface coating.
   d. Are due to changes in temperature.
   e. Both A and D above.
60. A masonry exterior may  
a. Be a solid masonry wall  
b. Be a facing applied to a wood frame.  
c. Display similar defects regardless of type.  
d. Require painting to prevent moisture penetration.  
e. A, B and C above.

61. Stucco cracks occur due to  
a. Shrinkage of stucco  
b. Shrinkage of the wood frame.  
c. Framing material changing direction.  
d. Uncontrolled movement of the structure.  
e. All of the above.

62. Asbestos cement shingles  
a. Should be scraped clean before painting.  
b. Should never be painted.  
c. Must be treated as hazardous material if removed.  
d. Are very malleable.

63. Doors and windows should be inspected for  
a. Doors and windows are not inspected.  
b. Defects caused by improper installation in the rough opening.  
c. Unsatisfactory performance of moving parts.  
d. Resistance to burglary.  
e. Both B and C

64. Trim is to be inspected and reported on according to ASHI standards  
a. True  
b. False

69. Doors should not swing out over stairs  
a. True  
b. False

70. Decks with carpet installed on the surface  
a. Can dramatically increase living space but are costly.  
b. Are prone to moisture problems.  
c. Cannot be adequately inspected.  
d. Built with pressure treated wood are weather resistant  
e. B and C above
71. The 3 common systems for framing a house are balloon, platform and post and beam.
   a. True
   b. False.

72. In a balloon framing, the studs are on each level and are the same length.
   a. True
   b. False

73. Motorized garage doors
   a. Should be operating when an obstacle is encountered.
   b. Should stop and reverse when they hit an obstacle.
   c. Are not part of the home inspection.
   d. Never hurt anyone during operation.
Uniform Building Codes (UBC)
(May vary by geographical location)

74. The code requires that surface water be properly drained and controlled
   a. True
   b. False

75. Foundation supporting wood should extend how high above a finished grade?
   a. 2 inches
   b. 1 foot
   c. 8 inches
   d. 6 inches

76. Anchor bolts must be embedded into concrete at a depth of
   a. 12 inches
   b. 4 inches
   c. 6 inches
   d. 7 inches

77. What is the maximum distance between foundation anchor bolts?
   a. 2 feet
   b. 4 feet 6 inches
   c. 6 feet
   d. 8 feet

78. What is the minimum slope of ground adjacent to the foundation?
   a. 1 inch in 4
   b. 1 inch in 6
   c. 1 inch in 10
   d. 1 inch in 12

79. An anchor bolt should be how far from the end of the sill plate?
   a. within 4 inches
   b. within 12 inches
   c. within 6 inches
   d. within 18 inches

80. Foundation ventilation openings needs no protective covering
   a. True
   b. False
81. Ventilation in underfloor area may be provided by
   a. Mechanical means
   b. opening in foundations
   c. No ventilation required
   d. Both A and B apply

82. The minimum size of access opening where standard underfloor clearance is required is?
   a. 18 x 18 inches
   b. 20 x 20 inches
   c. 18 x 24 inches
   d. 18 x 30 inches

83. Which of the following is permissible beneath buildings?
   a. Form wood in contact with soil
   b. Stumps and roots 12 inches below the soil surface
   c. Loose or casual wood in contact with ground
   d. Form wood below foundation sills

84. What portion of a beam or joist should not be notched?
   a. Top half
   b. Lower third
   c. Middle third
   d. Bottom half.

85. What is the maximum depth of a notch in a beam or joist?
   a. 1/3 depth
   b. 1/4 depth
   c. 1/6 depth
   d. 1/2 depth

86. Plants may be used to control erosion on a cut slope
   a. True
   b. False

87. How far should planter boxes be from wood framed walls?
   a. 4 inches
   b. 12 inches
   c. 6 inches
   d. 2 inches

88. What is the maximum depth for a notch at the end of the joist?
   a. 1/2 joist depth
   b. 1/6 joist depth
   c. 1/3 joist depth
   d. 1/4 joist depth
89. How close can holes bored in joist be from the top or bottom of a joist?
   a. 2 inches  
   b. 4 inches  
   c. 1 inch  
   d. 6 inches

90. Joist should be toe nailed into the sides of a wooden girder if no anchor or ledger strips are used.
   a. True  
   b. False

91. Joist below and parallel to a bearing wall should be
   a. doubled
   b. tripled

92. Gypsum board can be used as a bracing to resist wind and seismic forces.
   a. True  
   b. False

93. Lintel and header are used to describe the same thing
   a. True  
   b. False

94. How much can a non-bearing partition stud be notched
   a. 30%  
   b. 50%  
   c. 25%  
   d. 40%

95. Double of trimmer and header rafters is necessary when the span of the header is greater than
   a. 1 foot 6 inches  
   b. 2 feet  
   c. 6 feet  
   d. 4 feet

96. Rafter ties are required when ceiling joist and rafters are parallel
   a. True  
   b. False

97. What is the max span for a 2x6 purlin?
   a. 2 feet  
   b. 4 feet  
   c. 6 feet
98. Purlins can be smaller than the supported rafters.  
a. True  
b. False  

99. What is the min. size for attic opening? 
a. 18x24 inches  
b. 20x30 inches  
c. 18x30 inches  
d. 22x30 inches  

100. What is the min. headroom above attic access opening?  
a. 18 inches  
b. 24 inches  
c. 30 inches  
d. 36 inches  

101. Ventilation is required in attic spaces.  
a. True  
b. False  

102. Guardrails are required at edges of walking surfaces higher than  
a. 24 inches  
b. 30 inches  
c. 24 inches  
d. 18 inches  

103. The minimum height on guardrails is  
a. 30 inches  
b. 36 inches  
c. 24 inches  

104. What is the max rise and min run on a private stairway?  
a. 8 inches,9 inches  
b. 9 inches,10 inches  
c. 8 inches,7 inches  
d. 7 inches, 8 inches  

105. What is the min headroom above a stairway?  
a. 6 feet 6 inches  
b. 6 feet 8 inches  
c. 7 feet  
d. 7 feet 6 inches
106. At what width must a stairway have more than one handrail?
   a. 36 inches
   b. 42 inches
   c. 48 inches
   d. 52 inches

107. How far above the earth should a weep screed be placed?
   a. 2 inches
   b. 4 inches
   c. 6 inches
   d. 8 inches

108. Swimming pool barrier must be at least how far above grade?
   a. 36 inches
   b. 48 inches
   c. 5 feet

109. Gates through barriers leading to swimming pools must have a lock and a self closing/self-latching device.
   a. True
   b. False

110. How much clearance is required in front of the toilet?
   a. 18 inches
   b. 24 inches
   c. 30 inches

111. What are the requirements of the habitable room?
   a. Light
   b. Ventilation
   c. Egress
   d. Heat
   e. All of the above

112. A door from the garage may lead into a bedroom
   a. True
   b. False

113. What is the clearance in front of and the sides of a fireplace?
   a. 8 inches, 8 inches
   b. 12 inches, 6 inches
   c. 12 inches, 12 inches
   d. 16 inches, 8 inches

114. What is the min width of a habitable room, which is not a kitchen?
   a. 5 feet    b. 6 feet    c. 7 feet    d. 8 feet
Plumbing

115. If a plumbing vent extends too far above the roofline, there is a risk of:
   a) Frost closure.
   b) Downdrafting.
   c) Siphoning.
   d) Leakage.

116. Bathroom fans are required by most codes:
   a) Where a bathroom does not have an operable window.
   b) In en suite bathrooms.
   c) Where humidity levels in the attic are too low.
   d) In bathrooms with three or more fixtures.

117. Ground fault circuit interrupters are required:
   a) On sauna heaters.
   b) On dishwashers.
   c) In Whirlpool baths.
   e) On bathroom exhaust fans.

118. The plumbing inspections does not include the:
   a) Lawn sprinkler systems.
   b) Supply piping.
   c) Waste and vent piping.
   d) Plumbing fixtures.
   e) Plumbing faucets.

119. Which of the following piping systems are normally pressurized?
   a) Vent piping.
   b) Waste piping.
   b) Supply piping.
   c) Traps.
   d) The exhaust flue from the water heater.

120. In new houses, the minimum pipe size for the main water supply line is:
   a) 1/4 inch.
   b) 3/8 inch
   c) ½ inch.
   d) 5/8 inch.
   e) ¾ inch.
121. Noise in a plumbing system is not usually caused by:
   a) Worn valves.
   b) Pipes expanding and rubbing against framing members.
   c) Inadequate support of piping.
   d) Water hammer.
   e) Excessively cold water.

122. The plumbing fixture notorious for leakage through small openings in the grout, caulking or weather stripped areas is the:
   a) Toilet.
   b) Lavatory.
   c) Angle stop.
   d) Bidet.
   e) Shower enclosure.

123. Galvanic action is:
   a) Unique to water heaters.
   b) Deterioration common in waste plumbing systems.
   c) A problem with dissimilar metals in contact.
   d) Prevented with a ground wire.
   e) More serious on cold water piping than hot water piping.

124. A wet vent is:
   a) A vent pip located outside.
   b) A vent from a plumbing fixture which holds more than six inches of water depth.
   c) A vent that also acts as a drain.
   d) Never found in a bathroom plumbing assembly.

125. Which material should never be used for supply piping in houses?
   a. Copper material
   b. Galvanized steel.
   c. Polybutylene.
   d) Lead.

126. Double trapping of fixtures is:
   a) Required where there are two or more fixtures.
   b) Required where solid waste is involved.
   c) Optional in residential applications.
   d) Never permitted.
   e) Never required, but permitted.
127. Plumbing vent stacks should terminate at least _____ above the roofline.
   a) 2 inches.
   a) 6 inches.
   b) 10 inches.
   c) 18 inches.
   d) 24 inches.

128 Traps:
   a) Prevent valuables from being lost down drains.
   b) Collect sludge and prevent the clogging of septic or municipal waste systems.
   c) Prevent sewer odors from entering the house.
   d) Prevent siphoning of plumbing fixtures.
   e) Prevent heat loss out of the building through the plumbing pipes.

129 A cross connection occurs when:
   a) The hot water faucet is on the right at a sink.
   b) When the hot and cold water connections at a water heater are reversed.
   c) When two dissimilar supply piping materials are joined.
   d) When a supply pipe is inadvertently tapped into a plumbing drain.
   e) When a faucet spout is below the flood rim of a fixture.

130 Some plumbing fixtures necessarily create a situation that could lead to a cross connection. An example is:
   a) A water heater.
   b) In the piping away from the fixture.
   c) At a bathtub.
   d) At a laundry tub.
   e) At a bidet.

131 A combination sewer is:
   a) A sewer that handles both liquid and solid waste.
   b) A sewer that handles both storm water and sanitary sewage.
   c) Used on all modern houses.
   d) Used to handle wastewater and overflow from fixtures.
   e) Used to handle floor drains as well as fixtures drains.

132. During a home inspection, how do you distinguish between brass and copper supply pipes?
   a) Brass pipes were never used in two story homes.
   b) Brass pipes have threaded joints; copper pipes have soldered joints.
   c) Brass pipes will attract a magnet; copper pipes will not.
   d) A different solder is used on brass pipes than copper pipes.
   e) Brass pipes can be bent through a 7-inch radius; copper pipes cannot.
133. How far can a plumbing fixture be from the main stack horizontally, without requiring its own vent?
   a) 1 foot.
   b) 3 feet.
   c) 5 feet.
   d) 7 feet.
   e) 9 feet.

134. Plumbing stacks should terminate how far horizontally from a window?
   a) 3 feet.
   b) 6 feet.
   c) 10 feet.
   d) 12 feet.
   e) 15 feet.

135. The on-site water supply volume is:
   a) The rate of pressure of the water supply as sent in by the local jurisdiction.
   b) The quality of water supplied through the faucets.
   c) A technically exhaustive test not required of a home inspector.
   d) When water empties from sinks in a reasonable amount of time and does not overflow.
   e) The rate of flow of water.

136. Plumbing alterations should be reported because
   a) Homeowners do a lot of plumbing repairs.
   b) Homeowners are innovative.
   c) Improper materials and poor techniques may exist.
   d) Indicate past problems.
   e) All except B.

137. The main water supply line belongs to the
   a) Homeowner.
   b) City or county.
   c) Water Company.
   d) The corporation owning the street main valve.
   e) None of the above.

138. The minimum size of a house main water supply line should be
   a) ½ inch.
   b) ¾ inch.
   c) 7/8 inch.
   d) 1 inch.
   e) None of the above.
139. Water hammer can be correct by
   a) Decreasing the water pressure of a residence.
   b) Changing supply pipes.
   c) Refasten loose pipe.
   d) Installation of air chambers or shock absorbers.
   e) C and D above apply.

140. A typical cause of corrosion is
   a) Rust.
   b) Metal plating.
   c) Two dissimilar metals in contact.
   d) Poorly fitting pipe joints.
   e) Bother a and d above.

141. ASHI standards require that an inspector operate any system, which is turned off.
   a) True.
   b) False.

142. The most extensively used supply piping material in modern home construction is
   a) Iron.
   b) Steel.
   c) Cooper.
   d) Plastic.
   e) Concrete.

143. Which material has been known to cause health problems in supply piping?
   a) Iron.
   b) Lead.
   c) Copper.
   d) Polybutylene.

144. Functional flow is the same thing as water pressure.
   a) True.
   b) False.

145. ASHI standards require the inspector to operate two or more plumbing fixtures at a time.
   a) True.
   b) False.
146. The inspector should evaluate the condition of water heaters for
   a) Efficiency of water heater.
   b) How much life remains.
   c) Presence of TPR valve.
   d) Proper connections to hot and cold.
   e) Both C and D apply.

147. Drainage system includes drain, waster and vent.
   a) True.
   b) False.

148. The purpose of drainage traps is to
   a) Prevent sludge buildup in the sink.
   b) Prevent sewer gas from entering the house.
   c) Prevent back siphonage into the water supply.
   d) All of the above apply.

149. The following traps are allowed.
   a) S-traps.
   b) Bag traps.
   c) Double traps.
   d) P-traps.

150. ASHI standards do not require that the inspector evaluate functional
     drainage.
     a) True.
     b) False.

151. Water conditioning equipment inspection is required by ASHI standards.
     a) True.
     b) False.

152. The inspector should determine if cross connections are present in the
     plumbing system.
     a) True.
     b) False.

153. Lead piping should be identified according to ASHI standards.
     a) True.
     b) False.

154. In most jurisdictions, roof drains may be connected to the plumbing drains,
     provided only that they do not interfere with proper venting of the drain system.
     a) True.
     b) False.
**Electrical**

155. The nominal voltage provided to most new houses is:
   a) 120/240 volts.
   b) 115/230 volts.
   c) 110/208 volts.
   d) 60/120 volts.
   e) 120/208 volts.

156. Electrical resistance:
   a) Increases with increasing wire diameter.
   b) Decreases with increasing wire diameter.
   c) Is affected by wire insulations.
   d) Is the only factor, which determines the current carrying capacity of the wire.
   e) Is higher for cooper than aluminum.

157. The wire size used in normal household circuits carrying 15-amps is:
   a) # 14 gauge cooper.
   b) # 12 gauge aluminum.
   c) # 16 gauge cooper.
   d) # 10 gauge tinned copper.
   e) A & B

158. The electrical service size into a home can only be determined by:
   a) The number of conductors entering the masthead.
   b) The size and material of the service conductors.
   c) The rating of the service equipment.
   d) The rating of the main disconnect.
   e) Whatever is the least of B, C, or D.

159. The power available in a typical 15-amp, 120-volt household circuit is:
   a. 1,500 watts.
   b. 1,000 watts.
   c. 1,800 watts.
   d. 3,600 watts.

160. A damaged or nicked wire is a safety hazard because:
   a) The damaged wire may corrode.
   b) The wires effective diameter has been decreased, therefore decreasing the resistance of the wire.
   c) This is really not a concern, since the circuit will probably not be used enough.
   d) The effective resistance of the wire is increased, so the fuse can no longer adequately protect the wire from overheating.
161. Only circuit breakers can be used as an overcurrent protection device because:
   a) You can’t buy fuses anymore.
   b) A fuse is not as safe as a circuit breaker.
   c) Circuit breakers are more convenient.
   d) Circuit breakers are more accurate in determining when a circuit is overloaded.
   e) Fuses or circuit breakers perform equally well and either device can be used.

162. What is the function of a drip loop?
   a) Prevents current from leaking out of the electrical system.
   b) It is an alternate method of providing a ground fault circuit interrupter.
   c) It controls a single circuit serving more than one fixture.
   d) Prevents water from entering the masthead.
   e) Provides grounding for the electrical system.

163. What is the minimum service size for new home constructions?
   a) 100-amps for homes or residential units.
   b) 200-amps for any home built after 1990.
   c) 30-amps for mobile homes or residential units less than 600 square feet.
   d) 60-amps for homes or residential units less than 500 square feet.
   e) Both b and c.

164. If an auxiliary panel has been added, the wires connecting it to the service panel are protected by:
   a) Overcurrent protection provided in the service panel.
   b) Overcurrent protection provided at the auxiliary panel end, only if the wire is protected in a rigid conduit and does not exceed five feet in length.
   c) A drip loop.
   d) A & B.
   e) The current Electrical Code does not permit the addition of auxiliary panels.

165. What is linking?
   a) Linking ensures that light switches only operate the fixtures installed in the same room.
   b) It is the same bonding.
   c) It ensures that two fuses or circuit breakers are disconnected at the same time.
   d) It refers to connections made in a junction box.
   e) It is the connection made between the masthead and the overhead wires (service drop).
166. The service entry size for a 200-amp service is:
   a) # 3 gauge copper.
   b) # 2/0 gauge copper.
   c) # 3/0 gauge aluminum.
   d) # 2 gauge copper
   e) # 6 gauge aluminum.

167. The only suitable receptacles for use with aluminum wire should be marked:
   a) CU/AL
   b) CO/AL
   c) CU/ALR
   d) CO/ALR
   e) AL/OK

168. A kitchen split receptacle is:
   a) A stove circuit.
   b) A switched circuit operating a wall receptacle.
   c) Trash compactor (1/2 recyclable, ½ garbage).
   d) A circuit servicing a separate cook-top and oven.
   e) A duplex receptacle where the top and bottom halves are on individual, dedicated circuits.

169. Does any existing knob-and tube wiring have to be replaced?
   a) Yes, it is not longer allowed by any electrical codes.
   b) No, it is always fine and never needs to be replaced.
   c) It should be evaluated on a case-by-case basis and should not be replaced simply because it is old.
   d) It should be replaced if a grounded circuit is desired in its place.
   e) C & D.

170. When was aluminum wire commonly used for residential wiring?
   a) 1950-1952.
   b) Late 1970’s – 1980’s.
   c) Up until 1950.
   d) Early 1900’s – 1039.
   e) Late 1960’s – roughly 1978.

171. What is the function of a ground fault circuit interrupter?
   a) It shuts the power off to a circuit when there is a 0.005-amp difference in the incoming and out going current flow.
   b) It detects if there is a poor ground connection.
   c) It shuts the power off if the relative humidity is too high.
   d) It shuts the power off to circuits in a wet area when there is a 0.5-amp short circuit.
   e) It works the same as a circuit breaker, only it is more convenient.
172. How many 120-volt circuits (spaces) are required in many jurisdictions for new 100-amp service panels?
   a) 12 minimum.
   b) 24 minimum.
   c) 36 minimum.
   d) 49 minimum.
   e) 60 minimum.

173. When will an outlet have reversed polarity?
   a) Two black (hot) wires are attached to a receptacle.
   b) The black and white wires are reversed on the outlet.
   c) Incorrect grounding.
   d) The same as linking.
   e) The positive and negative wires are reversed in the panel.

174. Where are GFCI’s required in a home?
   a) Everywhere.
   b) Outdoor and bathroom outlets.
   c) In the outlet beside the service panel.
   d) Whirlpools, spas and swimming pool lights.
   e) B & D.

175. The voltage capacity of a residence can be determined by:
   a) Location of the nearest electrical transformer.
   b) The rating of the main disconnect.
   c) The size of the conductors entering the building.
   d) The number of conductors entering the building.

176. An electrical system inspection includes
   a) The fuse or circuit breaker panel.
   b) The service entrances.
   c) The outlets and receptacles.
   d) All the above.

177. The low point in a service drop must clear the ground where vehicles pass underneath by at least
   a) 8 feet.
   b) 10 feet.
   c) 12 feet.
178. A mast must be used with a service drop if
   a) the attachment point is too low for the service drop to clear the roof by 3 feet.
   b) The service drop is heavy enough to carry more than 125 amps.
   c) The weather head does not clear the roof by 3 feet.
   d) The service drop clears the roof by more than 3 feet.

179. A service lateral
   a) Can be easily inspected from the transformer to the main disconnect.
   b) Performs essentially the same function as the service drop and service entrance. And exists underground.
   c) Must be repaired by the homeowner.

180. The weatherhead
   a) Is owned by the power company.
   b) Needs a drop loop or slack before the cables enter.
   c) Must be 3 feet above the roof.
   d) Determines the phase and voltage of the current entering a house.

181. What is the maximum # of breakers which can exist without main disconnects?
   a) 2
   b) 4
   c) 6
   d) 8

182. An inspector should not disconnect any element in the electrical system with two exceptions.
   a) GFCI’s 60-amp panel fused pull out blocks.
   b) GFCI’s and fused grounds.
   c) GFCI’s and main disconnects.
   d) GFCI’s and push to test circuit breakers.

183. The current rating of a system can be determined by
   a) Noting the service entrance panel rating.
   b) Determining the rating of the main disconnect.
   c) Adding together the ratings of all the installed fused and circuit breakers.
   d) Noting the rating of the service drop, feeder cables, and the main disconnect and using the smallest of them.

184. Aluminum cables must be larger than copper for the same rating.
   a) True.
   b) False.
185. Feeder cables may be spliced.
   a) True.
   b) False.

186. What type of defects can be noted inside the main panel?
   a) Two wires to one breaker.
   b) Evidence of arching.
   c) Excessive insulation
   d) Unused knockouts that are popped out.
   e) All of the above.

187. An inspector should open panel covers because
   a) it shows the client that a thorough inspection is being done.
   b) Many potentially unsafe practices can only be discovered inside an enclosure.
   c) It is necessary in order to determine the opacity.
   d) The enclosure may be “hot”

188. The panel cover should first be tapped with the right knuckles to insure panel is not “hot”.
   a) True.
   b) False.

189. GFCI’s according to current standards
   a) Are required in exterior circuits accessible from ground level, in garages, bathrooms, and kitchen.
   b) Should be tested monthly.
   c) Must be tripped electrically by the inspector.
   d) Should trip after a ground fault.
   e) All of the above.

190. Inspectors must insist that old construction be updated with GFCI’s.
   a) True.
   b) False.

191. Bonding consists of
   a) Connections between non-current carrying, non-wire elements in an electrical system.
   b) An extra strong adhesive.
   c) Current carrying conductors connected to bonded enclosures.
   d) Connections capable of carrying the anticipated ground fault load for a given element.
   e) Both A and D above.
192. The purpose of bonding and grounding are the same.
   a) True.
   b) False.

193. A grounding bus should be found
   a) In all auxiliary service panels.
   b) In all service entrances.
   c) In all main service panels.
   d) In all meter panels.
   e) None of the above.

194. What is the main defect associated with aluminum wiring?
   a) Insufficient amperage.
   b) High maintenance.
   c) Fire danger

195. The grounding conductor must terminate at
   a) The meter.
   b) The metal rod driven 2 feet below ground.
   c) Two driven ground rods 8 feet into soil.
   d) One driven ground rod 8 feet into soil or to street side of water meter or house cock.
   e) Both C and D apply.

196. The system ground may terminate on gas piping.
   a) True.
   b) False.

197. The typical homeowner can perform proper electrical installations and corrections.
   a) True.
   b) False.

198. Bonding insures
   a) Proper grounding.
   b) Proper energizing.
   c) That a metal object be kept at zero potential to ground.

199. Aluminum wiring can be made safe in a home.
   a) True.
   b) False.
200. A three pole main disconnect might indicate.
   a) Single phase power.
   b) A sub-panel is present.
   c) A “fused” neutral conductor.
   d) Allowance for future upgrades.

201. Staples or approved hangers must be used
   a) Within 4 inches of an enclosure.
   b) Within 6 inches of an enclosure.
   c) Within 12 inches of an enclosure.
   d) Not more than 4 ½ feet apart.
   e) Both C and D apply.

202. According to ASHI standards, a minimum of how many receptacles must be check per space?
   a) 1
   b) 2

203. Every kitchen counter at least 12 inches wide should have a
   a) GFCI receptacle.
   b) Bonded receptacle.
   c) Grounding receptacle.
   d) Trash receptacle.

204. Attic enclosures and boxes do no need covers.
   a) True.
   b) False.

205. What are the defects associated with knob and tube wiring?
   a) Brittle insulation.
   b) Wires covered by attic insulation.
   c) Improper connections.
   d) All of the above apply.

206. A bathroom light switch reachable from a tub or shower should be
   a) Grounded.
   b) A GFCI receptacle.
   c) Moved.
   d) Covered by an insulated faceplate.
   e) None of the above.
207. An inspector can suggest that the client consider updating an older electrical system.
   a) True.
   b) False.

208. Wiring for ventilating or whole house fans should
   a) Run through or alongside rafters.
   b) Be one size larger due to high attic temperatures in the summer.
   c) Be spliced in junction boxes.
   d) Not be spliced.
   e) Both A and C above.
Heating

209. ASHI standards require that the energy source be described for heating.
   a) True.
   b) False.

210. The inspector is required to do the following
   a) Operate system with normal controls.
   b) Open access and inspection panels.
   c) Inspect condition of controls.
   d) Inspect condition of heat source in each habitable area.
   e) All of the above apply.

211. The inspector should activate shut down systems.
   a) True.
   b) False.

212. The inspector should ignite fires in fireplaces and include interior of the chimney flue.
   a) True.
   b) False.

213. A forced warm air system has
   a) Rapid response when heat is needed.
   b) A heat exchanger
   c) A filter system.
   d) All of the above.
   e) None of the above.
214. A standard safety control for a warm air system is
   a) A thermostat.
   b) A fan switch.
   c) A limit switch.
   d) A “summer” switch.

215. Use of the manual fan control causes
   a) The airflow to continue when the burner cycles.
   b) Hot spots.
   c) Cold spots.
   d) Air stratification.

216. Short cycling of a forced air heating unit can be caused by
   a) Supply ducts too small.
   b) Wrong filter installed.
   c) Filter clogged.
   d) Return ducts undersized.
   e) All the above.

217. Closet installations are dangerous because
   a) Increased possibility of fire.
   b) Production of carbon monoxide.
   c) No problem exists.

218. All products of combustion with fuel burning equipment must be vented.
   a) True.
   b) False.

219. In a garage, how far above ground should the flame of a heating unit or water heater be?
   a) 6 inches.
   b) 12 inches.
   c) 18 inches.
   d) 24 inches.

220. Hydronic systems may be open or closed. The closed system has the expansion tank
   a) At highest point in the house.
   b) Above the boiler.
   c) At the return line of the boiler.
221. In a gravity heating system, air moves from place to place with the use of
   a) Radiators.
   b) Registers.
   c) Fans.
   d) Blowers.
   e) Both C and D apply.

222. In a zones system (Heating)
   a) Each zone is usually controlled by it’s own thermostat.
   b) An inoperative zone valve is considered a major deficiency.
   c) You will never see balancing valves installed.
   d) The valves are controlled by an aquastat.

223. Forced warm air consists of
   a) Combustion camber.
   b) Heat exchanger and return ducting.
   c) Fan with filter.
   d) Supply.
   e) All the above apply.

224. Steam systems capitalize on the fact that
   a) Large quantities of heat are absorbed as water changes to steam
      and is given off when steam condenses to water.
   b) Steam is lighter than water and can be run through piping systems
      easier.
   c) Steam is hotter than water.
   d) Radiators are more efficient than convectors.

225. Circulating fans and their components should be:
   a) 18” above the garage floor.
   b) Solidly supported.
   c) Noise free.
   d) All of the above.
   e) Both B and C above.

226. What does steam have that differs from other heating systems?
   a) Multi-thermostats.
   b) Barometric damper.
   c) Sight glass/gauge.
   d) High limit switch.

227. How can an inspector know that a forced-air heating system is fueled by oil?
   a) Presence of sight glass.
   b) Pressure/tem gauge.
   c) Condensate line.
   d) Barometric damper.
228. On which heating system is the Hartford loop present?
   a) Gravity warm air.
   b) Hydronic boiler-oil fueled.
   c) Steam heater.
   d) Hydronic boiler-gas fueled.

229. In steam heating, at what pressure is the operating cut off control set?
   a) 12-24 psi.
   b) 2-3 psi.
   c) 0.5-1 psi.

230. A Hartford loop
   a) Is an equalizer circuit insuring equal pressure above and below the boiler waterline.
   b) Prevents boiler water siphoning via a return leak.
   c) A loop done by an airplane over Hartford, CT.
   d) The complete piping circuit of a boiler.
   e) Both A and B above.

231. A radiant heat systems uses ______ to radiate heat.
   a) Sunlight.
   b) Buried pipes or panels.
   c) Wood or coal.
   d) An entire ceiling, wall, or floor.
   e) Both B and D.

232. For safety, oil burners usually have
   a) A stack switch.
   b) A forced draft fan.
   c) A photoelectric device.
   d) A barometric draft damper.
   e) Either A or C above.

233. A draft hood is
   a) A part of the appliance.
   b) A vent.
   c) Necessary on all electric heating units.
   d) Not a passive device.
   e) None of the above.

234. Gas burners are lit by
   a) A pilot flame.
   b) An electronic igniter.
   c) A surface igniter.
   d) Any of the above.
235. Electrical heat usually
   a) Takes longer to warm up.
   b) More costly to operate.
   c) Controlled by a thermostat.
   d) All of the above.

236. Unvented fuel burning devices are considered acceptable when:
   a) They are thoroughly inspected.
   b) They provide adequate heat.
   c) Never acceptable.
   d) They are documented in your report.
   e) All except C.

237. A conventional fireplace
   a) Must be included as fulfilling part of the heat requirements in colder climates.
   b) Heats the room by convection.
   c) Flue should be shared with other fuel burning equipment.
   d) May be a significant heat waster due to heat going up chimney.

238. Which of the following is the most critical component of a forced-air furnace?
   a) Blower and motor.
   b) Gas valve.
   c) Heat exchanger
   d) Thermostat.
   e) Gas burner.

239. What is the typical range at which the fan/limit switch will turn blower on?
   a) 90o-100o
   b) 110o-130o
   c) 130o-150o
   d) 150o-170o
   e) 170o-190o

240. In converting kilowatts (kw) to BTU’s for capacity ratings, 1 kw is equivalent to:
   a) 1210 BTU
   b) 450 BTU
   c) 6813 BTU
   d) 3412 BTU
   e) 5817 BTU
241. Most conventional forced-air furnaces have an expected life of:
   a) 10-15 years.
   b) 15-20 years.
   c) 20-25 years.
   d) 25-30 years.
   e) 30-35 years.

242. On closed systems, the expansion tank has the following purpose:
   a) A water reservoir for make-up water.
   b) A steam trap.
   c) No purpose on a “closed” system.
   d) Alleviates pressure when system heats up.
   e) Raise water above basement radiators for gravity flow.

243. Pressure reducing valves on a hot water heating system are typically set at:
   a) 5-7 psi.
   b) 7-12 psi.
   c) 12-22 psi.
   d) 17-22 psi.
   e) 30 psi.

244. Which of the following is not found on a closed hot water heating system?
   a) Circulating pump.
   b) Expansion tank
   c) Pressure relief valve.
   d) Hartford loop.
   e) High temperature limit.

245. Which of the following is not true?
   a) Supply registers should be located near exterior walls, and below windows.
   b) Return registers can be located in garages.
   c) One return register per floor is usually acceptable.
   d) Every habitable room should have at least one supply register.

246. Which of the following does not have a heat exchanger?
   a) Heat recovery ventilator.
   b) Gas boiler.
   c) Oil furnace.
   d) Electric furnace.
   e) Steam boiler.
247. Which of the following statements about hot water heating systems is false?
   a) In a closed system, water is moved through the system by gravity.
   b) Boilers don’t actually “boil” the water.
   c) Open systems do not have circulating pumps.
   d) Boilers can be gas, oil or electric.
   e) In a closed system, a pressure relief valve is provided.

248. The primary purpose of a metal chimney liner is to:
   a) Allow conversion to a high efficiency furnace.
   b) Stop exhaust gases from entering the house through the chimney walls.
   c) Prevent masonry chimney deterioration.
   d) Insulate the brick flue from the increased heat of burning gas versus oil.

249. Which of the following is unique to only high efficiency gas furnaces?
   a) Induced draft fan.
   b) Condensate drain.
   c) Vent damper.
   d) Spark ignition.
   e) Metal chimney liner.

250. Roughly how much ventilation (for combustion air) should be provided for a conventional gas furnace?
   a) One square foot per 1,000 BTU’s.
   b) Two square inches per 1,000 BTU’s.
   c) Two square feet.
   d) None is required on a gas furnace.
   e) Two square inches per 100 BTU’s.

251. The following device proves ignition of the pilot light:
   a) Vent damper.
   b) Thermocouple.
   c) Spark plug.
   d) Barometric damper.
   e) Primary control.
252. Which of the following would have the least impact on the life expectancy of a furnace heat exchanger?
   a) Leak humidifier on supply plenum.
   b) Heat pump.
   c) Swimming pool or paint removing chemicals in the air.
   d) Conversion from oil to gas.
   e) All of the above reduce heat exchanger life expectancy significantly.

253. For an electric furnace (as opposed to gas) which of the following statements is false?
   a) A larger electrical service is likely required.
   b) The humidity levels within the home will likely be lower.
   c) Heating bills will likely be larger.
   d) The efficiency of the unit is greater.
   e) Central air can just as easily be installed.

254. A steam boiler may be identified by the presence of:
   a) A water level gauge.
   b) A drip loop.
   c) An expansion tank.
   d) A two pipe system.

255. What is a primary control?
   a) Thermostat.
   b) Power switch for furnace (typically near basement stairs).
   c) Safety device which senses temperature in exhaust flue.
   d) Fan/limit switch.
   e) Gas valve.

256. What is the minimum clearance from combustibles of the exhaust flue on a conventional oil furnace?
   a) 1 inch.
   b) 2 inches.
   c) 6 inches.
   d) 9 inches.
   e) 1 foot.

257. The exhaust flue on a conventional gas furnace should have a slope of at least:
   a) $\frac{1}{4}$ inch per foot.
   b) $\frac{1}{2}$ inch per foot.
   c) $\frac{3}{4}$ inch per foot.
   d) 1 inch per foot.
   e) 1 $\frac{1}{2}$ inches per foot.
Interiors

258. ASHI standards do not require which of the following items to be inspected:
   a) Walls, ceilings and floors.
   b) Steps, stairways and balconies.
   c) Cabinets and counters.
   d) A representative number of doors and windows.
   e) Sinks and intercoms.

259. ASHI standards require inspectors to operate all windows and doors.
   a) True.
   b) False.

260. Interior wall cracks are not caused by:
   a) Shrinkage of materials.
   b) Overloading of headers.
   c) Movement due to humidity or temperature change.
   d) Lack of insulation.

261. A concrete floor slab
   a) Should be a minimum of 3” thick with internal steel reinforcement.
   b) Could have cracks hidden by carpet.
   c) Should have displacement at the center.
   d) Are always waterproof.
   e) Both A and B above.

262. Doors should be described
   a) As to operation of hardware.
   b) Cosmetic deficiencies.
   c) How door fits in framework.
   d) All of the above apply.
   e) A and C apply.

263. Exterior glass doors should be safety glass.
   a) True.
   b) False.

264. Interior doors that stick at the jambs could indicate settlement.
   a) True.
   b) False.

265. Which of the following is not a type of window:
   a) Double hung.
   b) Casement.
   c) Hopper.
d)  Shingled.
e)  Louvered.

266. Glazing with defective seals can be repaired.
a)  True.
b)  False.

d)  Shingled.
e)  Louvered.

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d) Must be vented to the exterior.

273. An appliance inspection
   a) Is not required in an ASHI home inspection.
   b) Should be done on every appliance in a home.
   c) Should be done only at the client’s request.
   d) Should include humidifiers and burglar alarms.

274. Smoke detector testing
   a) Is difficult.
   b) Must be tested by pushing the test button and hearing the warning sound.
   c) Must include evaluation of the installed location.
   d) Is not required by ASHI standards.

275. Water penetration to the interior of a home usually causes:
   a) Interior finish damage only.
   b) Major structural damage.
   c) Insulation problems.
   d) No noticeable damage.

276. The concrete floors in basements are:
   a) Usually ½ inch thick.
   b) Always installed with rigid insulation below.
   c) Not known for cracking.
   d) Not a structural component of the house.

277. Hardwood flooring should be:
   a) At least ½ inch thick.
   b) Installed at right angles to the floor joists.
   c) Installed without sub-flooring.
   d) Offset 45o to 90o from diagonally laid sub-floor.

278. Squeaky sub-floors in homes are usually the result of:
   a) Poorly secured sub-flooring.
   b) A structural problem.
   c) The use of softwood sub-flooring.
   d) Sub-flooring secured with small headed nails.

279. The most common problem associated with ceramic tile flooring is:
   a) Surface wear.
   b) Grout which is improperly mixed.
   c) Cracking due to a floor system which is not stiff enough.
   d) Tiles which are intended for walls installed on the floor.
280. The plaster which oozed through the spaces between the wood laths is referred to as:
   a) A “Key”.
   b) The “brown” coat.
   c) “Capping”.
   d) “Cornerite”.

281. Stipple ceiling finishes are particularly good for:
   a) Cutting costs.
   b) Covering poor drywall work.
   c) Kitchen and bathroom applications.
   d) Ease of repair at a later date.

282. Cornice moldings are the moldings installed:
   a) Around ceiling light fixtures.
   b) At the junction of walls and ceilings.
   c) Kitchen and bathroom applications.
   d) Ease of repair at a later date.

283. A stairway tread is:
   a) The vertical section between adjacent steps.
   b) The long diagonal supports for the stairs.
   c) The horizontal distance from one riser to the next.
   d) The component which people step on.

284. Good stair design has:
   a) A maximum rise of 8 inches between treads.
   b) A maximum tread width of 9 ¼ inches.
   c) A stairwell width of less than 44 inches.
   d) Headroom of 5 feet 6 inches or more.

285. Railings around the top of open stairwells should be:
   a) At least 24 inches high.
   b) At least 30 inches high.
   c) At least 36 inches high.
   d) At least 48 inches high.

286. A window stile is:
   a) The section of the window immediately adjacent to the glass.
   b) The counterweight for a double hung window.
   c) The horizontal section immediately below the window sill.
   d) The metal beading between the panes of a double glazed window.
287. Condensation is most common on:
   a) Wood framed windows.
   b) Metal framed windows.
   c) Vinyl framed windows.
   d) Triple glazed windows.

288. Skylights which perform best are:
   a) Installed during the construction of the building.
   b) Installed after the house is built.
   c) Flush with the roofing surface.
   d) Plastic skylights.

289. The typical R-value of a double glazed window is:
   a) 1
   b) 2
   c) 4
   d) 6

290. Exterior doorways should ideally be:
   a) Installed with a threshold that is flush to the outdoor surface.
   b) Made of pressure treated wood.
   c) Installed with a step-up of at least 6 inches.
   d) Easily dismantled.

291 The smoke shelf of a conventional fireplace is located:
   a) At the top of the flue in lieu of the spark screen.
   b) Under the mantle.
   c) Above the damper.
   d) Below the ash dump.

292. A fireplace hearth should extend beyond the front of the fireplace by at least:
   a) 8 inches.
   b) 12 inches.
   c) 16 inches.
   d) 24 inches.

293. The most common cause of basement leakage is:
   a) Storm water from surface drainage.
   b) Underground springs.
   c) Plumbing system backups.
   d) Storm water from weeping tiles.
294. Perimeter foundation drainage tile should be located.
   a) Immediately beside the foundation wall at the basement floor level.
   b) Immediately beside the footing below the basement floor level.
   c) Wherever it is practical during construction to allow for six inches of gravel fill.
   d) Below the water table.
INSULATION

295. The most cost-effective way to conserve energy in a house is usually by
   a) Increasing attic insulation levels.
   b) Improving vapor barriers throughout the house.
   c) Caulking and weather stripping.

296. On which side of the insulation should the vapor barrier be installed?
   a) The warm side.
   b) The cold side.
   c) Inside.

297. When adding a vapor barrier on top of existing insulation in an attic, the
      amount of insulation that should be added on top of this vapor barrier is
      a) Any amount.
      b) At least as much as the existing level.
      c) None is allowed.
      d) Exactly the same amount as the existing level.

298. What problems are encountered when retrofitting insulation in an existing
     flat roof cavity?
     a) Difficulty in installing the insulation and limitation of the amount
        which can be added.
     b) Achieving adequate ventilation if often difficult.
     c) It is impossible to provide a tight air/vapor barrier without providing a new ceiling surface.
     d) All of the above.

299. Ventilation of a flat roof cavity can be achieved by
     a) Continuous soffit vents at eaves all around the roof.
     b) Adding strapping installed at right angles on top of roof joists.
     c) Neither A nor B.
     d) Both A and B.
300 When installing strapping perpendicular to roof joists on a flat roof in order to increase ventilation, minimum height of the strapping is
a) 1 inch.
b) 2 ½ inches.
c) 3 ½ inches.
d) 4 inches.

301 When observing a skylight well from within an attic space, the vapor barrier should be
a) Underneath the insulation.
b) On top of the insulation.
c) No vapor barrier is necessary.
d) The skylight well need not be insulated.

302. The best way to insulate the roof space behind a knee wall is to
a) Leave the space warm by insulating the sloped ceiling and the end walls.
b) Insulate the knee walls only.
c) Insulate the attic floor.
d) Keep the space cool by insulating the knee walls and the attic floor.

303. Adding insulation to an existing wood-frame exterior wall
a) Can only be achieved by blowing insulation into the cavities.
b) Is often not cost-effective.
c) Can be achieved from either the interior or the exterior.
d) Both B and C.

304. Increasing the insulation level of a masonry wall is
a) In most cases, not cost-effective.
b) Unnecessary as the masonry wall will provide good insulation.
c) Economically viable by blowing insulation into the cavity between the layers of masonry.
d) None of the above.

305. Insulating a basement foundation wall that is chronically wet
a) Is never a good idea.
b) Is best done from the interior.
c) Can result in frost damage to the foundation wall if done from the interior.
d) Is best achieved from the exterior during excavation for damp-proofing.
e) Both C and D.
306. One disadvantage of insulating the interior of a basement wall with rigid plastic insulation is
   a) It must be glued to the foundation wall.
   b) A vapor barrier must be provided on both sides of the insulation.
   c) Its R-value is inadequate.
   d) A non-combustible material must cover it.

307. Insulation in a crawl space should be installed in the following manner
   a) The floor above the crawl space should be insulated.
   b) The perimeter walls of the crawl space should be insulated.
   c) Both A and B.
   d) Either A or B.

308. When insulating the floor above an unheated area a vapor barrier should be installed
   a) Facing the finished floor.
   b) Underneath the sub-floor.
   c) Underneath the joists to hold up the insulation.
   d) No vapor barrier is required.

309. Plumbing pipes and heating pipes which pass through unheated areas should be insulated to a minimum of
   a) Supply plumbing pipes and heating pipes: R-4, waste plumbing pipes: 0.
   b) Supply plumbing pipes and heating pipes: R-7, waste plumbing pipes: 0.
   c) All pipes R-4.
   d) All pipes R-8.

310. Exhaust ducts which pass through unheated spaces should
   a) Discharge through the space and not into it.
   b) Should be insulated to prevent condensation.
   c) Have a minimum diameter of 6 inches.
   d) Both A and B.

311. The R-value per inch of vermiculite is
   a) 1.5
   b) 2.0
   c) 2.3
   d) 3.0

312. In a crawl space, the moisture barrier is installed
   a) On the cold side of the floor insulation.
   b) On top of an earthen floor.
   c) On the underside of the floor joists.
   d) On the crawl space walls.
313. Cellulose fiber insulation is made from
   a) Minerals.
   b) Mica.
   c) Glass.
   d) Paper.

314. A good insulating material
   a) Limits movement of trapped air.
   b) Slows the rate of heat lost from a house.
   c) Provides potential savings in fuel costs.
   d) Utilizes the insulating value of air.
   e) All of the above.

315. Vermiculite comes in the form of
   a) Batt
   b) Loose fill.
   c) Rigid board.
   d) Shredded.

316. The recommended ventilation rate of an attic with both ridge and eave ventilators is
   a) 1 sq. ft. of ventilation for every 100 sq. ft. of attic space.
   b) 1 sq. ft. of ventilation for every 500 sq. ft. of attic space.
   c) 1 sq. ft. of ventilation for every 300 sq. ft. of attic space.
   d) 1 sq. ft. of ventilation for every 400 sq. ft. of attic space.

317. In most cases, the best way to accomplish attic ventilation is with
   a) Gable vents.
   b) Continuous soffit vents with continuous ridge vents.
   c) Unit soffit vents with unit roof vents.
   d) Unit soffit vents with gable vents.

318. Rooftop vents and/or gable vents should account for what percentage of the total venting and should be situated on which side of the roof relative to wind direction?
   a) 40%, leeward.
   b) 40%, windward.
   c) 55%, windward.
   d) 55%, leeward.

319. During which times of the year is the use of an attic-mounted power ventilator recommended?
   a) Summer.
   b) Winter.
   c) Spring and fall.
   d) At any time of the year.
320. According to the UBC, in a crawl space, 1 square foot of ventilation is recommended for how many square feet of crawl space area?
   a) 400.
   b) 150.
   c) 600.
   d) 700.

321. For unheated crawl spaces, the vents should be
   a) Open year round.
   b) Open during the summer months only.
   c) Open during the winter months only.
   d) Closed year round.
AIR CONDITIONING AND HEAT PUMPS

322. Chilled air is denser than warm air.
   a) True.
   b) False.

323. Cool dense air is harder to move than warm air, so
   a) Smaller ducts are needed.
   b) Larger ducts are needed.
   c) Larger furnace size is needed.
   d) Larger motor is needed.
   e) Both B and D apply.

324. A compressor with a sump heater needs power for ___ hours before system operation.
   a) 6.
   b) 12.
   c) 24.
   d) As specified by the manufacturer.
   e) Both C and D apply.

325. Air conditioning equipment should not be operated when the ambient temperature is below
   a) 32o F.
   b) 45o F.
   c) 60o F.
   d) 65o F.
326. You should allow 5 minutes from system shutdown to restart because
   a) It allows the system pressures to equalize.
   b) It gives components time to cool.
   c) It prevents a “hot” start.
   d) The refrigerant must migrate to the compressor.
   e) Both A and D.

327. The most important condenser consideration is
   a) Nothing should prevent air entering the cabinet or leaving the fan (blower).
   b) The condenser should be located on the shady side of the house.
   c) The condenser should be located on the sunny side of the house.
   d) The fan axis should be vertical.
   e) None of the above.

328. Water cooled condensers
   a) Often have short-cycling compressors.
   b) Depend on both water temperature and pressure.
   c) Must be located outside in case of leakage.
   d) Should discharge the warm water into the sewer or waste system.

329. The evaporator is
   a) The system component that cools and dehumidifies the house air.
   b) A heat exchanger.
   c) Usually downstream of the air handler.
   d) All of the above.

330. The suction line should be insulated
   a) To prevent condensation.
   b) To decrease cooling losses.
   c) To prevent line damage.
   d) To protect the liquid line.
   e) Both A and B above.

331. The refrigerant lines of an operating system on a hot day should feel
   a) Suction line-hot, liquid line-cold.
   b) Liquid line-hot, suction line-cold.
   c) Both lines-hot.
   d) Both lines-cold.
   e) Both lines ambient temperature.

332. Most air handlers are part of
   a) A conventional forced air unit.
   b) An atmospheric boiler.
   c) A reverse flow heat exchanger.
   d) An indirect flow heat exchanger.
333. The air moving component of an air handler is
   a) A blower.
   b) A squirrel cage impeller.
   c) A fan.
   d) Any of the above.
   e) None of the above.

334. Evaporator inlet and outlet temperatures taken after a system is stabilized
   a) Indicate how well the system is performing.
   b) Determine the system capacity.
   c) Reveal a low or high refrigerant change.
   d) Determine whether or not a two-speed blower is in use.

335. Condensate drain systems
   a) Should have a “vacuum break” or air gap.
   b) May be discharged into plumbing vents.
   c) Should not discharge directly onto ground outside the house.
   d) May evaporate the condensate back into the house air.
   e) May discharge onto a roof surface.

336. The dual circuit breaker for the air conditioning system is “Off” when you check the electrical service panel. You should
   a) Reset it to see if it stays reset.
   b) Reset it and proceed to turn on the air conditioning system.
   c) Not reset the breaker and proceed with air conditioning system checks.
   d) Ask the owner why the breaker is “Off”.
   e) None of the above.

337. You find an add-on cooling system. You should
   a) Determine the actual system performance.
   b) Verify that there is adequate system air flow.
   c) Tell the client exactly how much capacity is needed.
   d) Verify that both heating and cooling systems cannot be on at the same time.
   e) Both B and D.

338. Evaporative coolers
   a) Are effective in dry climates.
   b) Are also called “swamp coolers”.
   c) Produce cool, damp air.
   d) Require periodic cleaning.
   e) All of the above.
339. A heat pump
   a) Is able to heat or cool a house.
   b) Can be instantly changed from one operating mode to the other.
   c) Uses a reversing valve to reverse the refrigerant flow in the piping.
   d) Can operate efficiently at temperatures below about 45o F.
   e) Both A and C above.
COOLING AND HEAT PUMPS

340. The component of a central air conditioner which produces condensate is:
   a) The condenser coil.
   b) The evaporator coil.
   c) The compressor.
   d) The expansion valve.

341. The component of a central air conditioner which releases heat is the:
   a) Compressor.
   b) Condenser coil.
   c) Evaporator coil.
   d) Expansion valve.
   e) Thermostat.

342. Central air conditioning makes the indoor climate more comfortable by:
   a) Increasing humidity levels.
   b) Reducing humidity levels.
   c) Increasing air circulation.
   d) Reducing interior air temperature.
   e) Both B and D.

343. The function of the compressor is to:
   a) Move the refrigerant.
   b) Compress the refrigerant.
   c) Compress the condensate.
   d) Compress the household air.
   e) A and B.

344. In a water-cooled air conditioning system, the condenser coil is cooled by using water from:
   a) The swimming pool.
   b) The supply plumbing system.
   c) The waste plumbing system.
   d) A nearby river or stream.
   e) A and D.

345. Independent air conditioning systems are often used on houses heated by:
   a) Electric baseboards heaters.
   b) Electric radiant heat.
   c) Hot water radiant heat.
   d) Radiators.
   e) All of the above.

346. Instead of using a compressor to drive the system, a gas chiller uses:
a) Ammonia.
b) Carbon dioxide.
c) Heat.
d) Gravity.

347. A heat pump is basically an air conditioner with
  a) A gas burner.
  b) A compressor.
  c) An in-line electric heater.
  d) A reversing valve.

348. Below the balance point, a heat pump:
  a) May not be able to generate enough heat to warm the house.
  b) Operates more economically.
  c) Should not be running in heating mode for fear of damaging the compressor.
  d) May tip over.

349. A heat pump with a natural gas burner outdoors below the evaporator coil is called:
  a) A plenum heater.
  b) A flame-source heat pump.
  c) A Kool-Fire system.
  d) A pulse system.

350. A ground source heat pump collects or dissipates heat through:
  a) Piping buried in the ground.
  b) Piping laid on top of the ground.
  c) Various types of solid fuel ground into a fine powder.
  d) The electrical ground system.

351. The cooling capacity of an air conditioner reflects:
  a) The amount of insulation in the house.
  b) The size of the house.
  c) The orientation of windows.
  d) The size and number of windows.
  e) All of the above.
352. If the condenser and evaporator coils have different capacity ratings, the total capacity is determined by:
   a) Adding the two capacities.
   b) Averaging the two capacities.
   c) Subtracting the two capacities.
   d) Taking the outdoor coil rating and going 1,000 BTU in the direction of the indoor coil rating.

353. As a general rule of thumb, in moderate climates, most houses have systems sized at one ton cooling for every:
   a) 50 to 100 sq. ft. of house
   b) 450 to 600 sq. ft. of house.
   c) 700 to 1000 sq. ft. of house.
   d) 1500 to 2000 sq. ft. of house.

354. The life expectancy of a compressor is typically:
   a) 6 to 8 years.
   b) 10 to 15 years.
   c) 15 to 20 years.
   d) 20 to 25 years.

355. In a central air conditioner, temperature drop across the plenum coil should be:
   a) .5 to 1.0o F.
   b) 2.5 to 5.0o F.
   c) 8 to 9o F.
   d) 14 to 22o F

356. Condensate from the condensate tray is generally discharged:
   a) Onto the heat exchanger.
   b) Into a bucket.
   c) Into the humidifier.
   d) Into a drain line, or the ground outside.
   e) None of the above.

357. If the bypass duct on a standard drum-type humidifier is not closed during cooling season:
   a) The evaporator coil may ice up.
   b) Airflow at the registers will be weak.
   c) The electronic air cleaner may be bypassed.
   d) The thermostat may shut the unit off prematurely.
358. Roof slopes with a pitch between 4 in 12 and 6 in 12 are considered to be
a. Flat roofs
b. Low sloped roofs
c. Conventional Roofs
d. Mansard Roofs

359. Conventional asphalt shingles can be used on a slope as low as 2 in 12 under which
of the following conditions?
a. When a special application procedure employing felt papers and roofing cement is
   followed
b. When the shingles are overlapped in such a way that triple coverage is accomplished.
c. When the roof faces south or west.
d. Never possible

360. The biggest enemy of asphalt shingle roofs is..
a. Rain water
b. Animals
c. Sunlight
d. Trees

361. The most common problem associated with slate roofs is
a. The flashing material does not last.
b. The slate flakes
c. The nails rust and allow slates to slide out of position.
d. None of the above.

362. Built up roofs are commonly known as
a. Tar and gravel roofs
b. Metal roofs with tar coating.
c. Single ply roofs
d. Roll roofing.

363. A water stain on a ceiling below a flat roof does not necessarily indicate a leak
   immediately above because.
a. The gravel redirects the water after it penetrates a membrane.
b. Water can travel between the plys of the roof before emerging on the interior.
c. Secondary drains often redirect water that penetrates the membrane.
d. None of the above.

364. The most effective solution to ice damming is
a. Polyethylene sheeting under the first few rows of shingles.
b. Heating cables
c. Increased attic insulation and ventilation.
d. Avalanche guards installed on the lower section of the roof.
365. The preferred material for valley flashing is
   a. Metal
   b. Heavy roofing felts
   c. Single ply membrane
   d. Roll roofing

366. The slope of a valley is
   a. Greater than the slope of the roof on either side.
   b. Exactly the same as the slope of either side.
   c. Less than the slope on either side.
   d. Not an issue.

367. Where a steeply pitched roof meets a lower pitched roof, the valley which is created may be especially vulnerable to
   a. Unusually rapid deterioration
   b. Water penetration under the shingles on the lower pitched side.
   c. Excessive shingles wear adjacent to the valley on the steeper pitched roof.
   d. Vermin infestation.

368. A parapet wall is
   a. Any side wall of a dormer.
   b. The curb wall around the perimeter of the skylight.
   c. A wall which protrudes above a roofline.
   d. An interior wall which meets a flat roof.

369. Skylights which are mounted flush to a roof surface are considered
   a. Prone to leak
   b. High quality units
   c. Prone to condensation
   d. Prone to mechanical damage.

370. Deterioration of brick chimneys is usually the result of
   a. Wind loading
   b. Moisture
   c. Settlement
   d. Oil fired heating systems

371. The purpose of a chimney cap is
   a. Prevent water from penetrating the top of the chimney
   b. Prevent animals from penetrating the top of the chimney flue.
   c. Prevent snow accumulating on the top of the chimney.
   d. Hold chimney liners in place.
372. The chimney should be
a. A max of 5 feet high.
b. A min of 2 feet high and 3 feet higher than any obstruction within 10 feet of the chimney.
c. A min of 3 feet above the roof line and 2 feet higher than any other obstruction within 10 feet.
d. Chimney height is insignificant when considering furnace chimneys.

373. A mutual chimney is a chimney which
a. Is shared by adjacent house.
b. Has one or more flues for each house.
c. Has more than one appliance or fireplace connected to a single flue.
d. A & B are correct.

374. A roof consist of which of the following? (ASHI)
a. The roof covering
b. The deck, flashing and penetration.
c. The structure
d. All of the above.

375. An important characteristic of any roof style or design is
a. The way it looks
b. its ability to shed water
c. it is easy to walk on
d. it can be replaced easy.

376. ASHI standard require inspectors to report on
a. roof covering
b. drainage system
c. Flashing, skylights, roof penetration and chimneys
d. All of the above.

377. ASHI standard do not require the inspector to walk on the roof.
a. true
b. False

378. ASHI standards require the inspector to identify roofing material
a. True
b. False
379. Which is not a roof style.
   a. Gambrel
   b. Butterfly
   c. Cricket
   d. Gable
   e. Mansard

380. Flashing
   a. Are used where planes intersect
   b. Are used where two materials meet or a junction
   c. Should remain watertight
   d. All of the above apply.

381. Which is not flashing
   a. Step and counter
   b. Drip edge and gravel stop
   c. Valley metal
   d. Cricket
   e. Stipple edge
ANSWER KEY
1. D  47. D  93. A  139. E
6. B  52. A  98. B  144. A
8. E  54. D  100. C  146. E
14. E  60. E  106. C  152. A
18. E  64. A  110. B  156. B
28. C  74. A  120. E  166. B
33. C  79. B  125. D  171. A
38. A  84. C  130. E  176. D
44. B  90. B  136. E  182. A
45. C  91. A  137. A  183. D
369. A
370. B
371. A
372. C
373. D
374. D
375. B
376. D
377. A
378. A
379. C
380. D
381. E