Practice HVAC Licensing Exam

1. A tracer wire buried with plastic gas piping shall be minimum ___AWG
    a) 16
    b) 14
    c) 18
    d) 20

2. The minimum ventilation rate for living area of a residence is the greater of 15 cfm per person or ____ air changes per hour
    a) .5
    b) .35
    c) .40
    d) 1

3. When using a test pressure of 10 psig, the test gauge shall not be capable of reading pressures greater than_____PSIG
    a) 100
    b) 80
    c) 50
    d) 75

4. The use of gypsum boards to for plenums shall be limited to systems where the temperature does not exceed _____ degrees F and the temperature of the conveyed air is kept above the dew point
    a) 125
    b) 110
    c) 250
    d) 95

5. A sauna room shall have a vent opening above the door at least 4 inches by ____ inches
    a) 6
    b) 12
    c) 10
    d) 8

6. Gas piping shall be labeled at intervals not exceeding _____ feet
    a) 8
    b) 5
    c) 4
    d) 3

7. A JOINT OBTAINED BY THE JOINING OF METAL PARTS WITH METALLIC MIXTURES OF ALLOYS WHICH MELT AT 1050 DEGREES F, IS CALLED A _____ JOINT.
    a) WELDED

b) MECHANICAL
c) BRAZED
d) SOLDERED

8. If a 6" X 10" combustion air duct is terminated with a metal louver (75% free area), the louver must be a minimum _____ square inches
a) 90
b) 60
c) 120
d) 80

9. A gas regulator that reduces incoming pressure between .5 and 5 psig to a lower pressure is called a _____.
a) service entrance regulator
b) low pressure regulator
c) high pressure regulator
d) medium pressure regulator

10. Unless otherwise specified by the manufacturer, vents shall terminate not less than _____feet above the highest connected appliance
a) 12
b) 10
c) 8
d) 5

11. When obtaining combustion air from a crawl space, the free area of the crawl space vent to the outside must be a minimum _____ the size of the combustion air opening
a) 4 times
b) 2.5 times
c) 3 times
d) 2 times

12. A type I hood, 5 foot long, wall mounted canopy, serving medium-duty appliances shall have a minimum capacity of _____ CFM
a) 1000
b) 2500
c) 500
d) 1500

13. Downdraft kitchen exhaust ducts may be constructed of_____.
a) all of the above
b) sheet metal
c) aluminum
d) PVC

14. When combustion air is mechanically forced into a room, a minimum rate of _____ cfm per 1000 btu/h of combined input rating of all installed appliances must be supplied

a) .35
b) 1.0
c) .25
d) .40

15. The maximum cfm of duct leakage allowed with a air handler in place for a 1500 square foot home with .1 inch w.c. is____.

a) 75
b) 150
c) 60
d) 80

16. Plastic pipe shall not be operated at pressures greater than _____ psig for LP gas

a) 100
b) 15
c) 30
d) 10

17. Semi-ridgid metallic tubing used as appliance connectors shall not exceed ___ feet

a) 8
b) 3
c) 6
d) 5

18. For other than appliances installed in fireplaces, a gas shutoff valve shall be located within ___feet of the appliance

a) 3
b) 4
c) 10
d) 6

19. Appliance pits greater than 12 inches deep shall be lined with masonry extending ___inches above the adjoining grade

a) 4
b) 2
c) 3
d) 6

20. Gas piping may be joined in concealed locations using which of the following methods?

a) brazing
b) compression fittings
c) unions

d) swing joints

21. 1/2" copper tubing must be supported a minimum of _____ feet when installed horizontally
a) 4
b) 10
c) 8
d) 6

22. Equipment, appliances or material included in a list published by a nationally recognized testing laboratory concerned with product evaluation and states that the above item meets recognized standards is said to be _____
a) approved
b) listed
c) certified
d) tested

23. A type I hood is not required for _____>
a) griddles
b) hot dog cookers
c) fryers
d) broilers

24. REFRIGERANTS REMOVED FROM A SYSTEM IN ANY CONDITION WITHOUT NECESSARILY TESTING OR PROCESSING THEM ARE CALLED_____.
a) RECYCLED REFRIGERANTS
b) RECIEVED REFRIGERANTS
c) RECOVERED REFRIGERANTS
d) RECLAIMED REFRIGERANTS

25. THE MAXIMUM ALLOWABLE HORIZONTAL LENGTH OF A CATEGORY I APPLIANCE SINGLE WALL VENT CONNECTOR IS _____% OF THE HEIGHT OF THE VENT
a) 50
b) 25
c) 75
d) 100

26. The minimum R value of suction line insulation is ____.
a) 3
b) 4
c) 5
d) 8

27. A NON LOAD BEARING STUD MAY BE NOTCHED _____% OF ITS

DEPTH.

a) 30
b) 40
c) 25
d) 15

28. CATEGORY I GAS EQUIPMENT MAY BE VENTED WITH WHICH OF THE FOLLOWING TYPES OF VENTS?

a) ALL THE ABOVE
b) CHIMNEY WITH CLAY LINER
c) TYPE B
d) SINGLE WALL METAL

29. RECLAIMED REFRIGERANTS SHALL NOT BE REUSED IN A DIFFERENT OWNERS EQUIPMENT UNLESS TESTED AND FOUND TO MEET THE PURITY REQUIREMENTS OF

a) ARI 700
b) ASTM A53
c) NFPA 54
d) ASHRAE 34

30. IF A GALLON OF OIL CONTAINING 140,000 BTU'S SELLS FOR $1.25, HOW MUCH WILL 1,000,000 BTU'S COST WHEN USED IN AN 80% AFUE OIL FURNACE

a) $8.93
b) $11.16
c) $14.00
d) $12.78

31. For 3/4 inch steel gas pipe hangers or supports shall be spaced not farther than _____feet apart

a) 10
b) 4
c) 8
d) 6

32. An auxiliary drain pan must have a minimum depth of ____ inche/s

a) 1.5
b) 1
c) 1.25
d) 2

33. A 12" ROUND DUCT HAS A RECTANGULAR EQUIVALENT OF

a) 16 X 8
b) 15 X 8
c) 14 X 8
d) 17 X 8

34. GAS APPLIANCE CONNECTORS SHALL NOT PASS THROUGH ANY OF THE FOLLOWING EXCEPT

a) WALLS
b) APPLIANCE HOUSINGS
c) FACTORY BUILT FIREPLACES
d) FLOORS

35. Sauna heaters shall have a thermostat that limits the room temperature to _____ degrees F

a) 194
b) 144
c) 114
d) 120

36. The minimum R value of duct insulation installed in areas other than the conditioned space or attics is _____

a) R 5
b) R 6
c) R 8
d) R 4

37. _____ piping may not be used for gas piping underground.

a) Aluminum
b) Copper
c) Steel
d) Plastic

38. The maximum length allowed for a 4 inch dryer duct with two 90 degree bends is _____ feet

a) 25
b) 35
c) 30
d) 40

39. an 80,000 btuh (output rating) forced air furnace will produce _____ degree temperature rise at 1000 CFM

a) 73
b) 80
c) 56
d) 49

40. A location that cannot be accessed without damageing permanent parts of a building is called a/an _____ location

a) inaccessible
b) assessible

c) concealed
d) ready access

41. AN APPLIANCE RATED AT 75,000 BTUH INPUT MUST BE PLACED IN A ROOM CONTAINING A MINIMUM _____ CUBIC FEET USING THE STANDARD COMBUSTION AIR CALCULATION
a) 3750
b) 7500
c) 1500
d) 75000

42. THE MINIMUM R-VALUE OF INSULATION COVERING AN ATTIC DUCT IS _____.
a) 8
b)10
c) 6
d) 4

43. The ignition source of an appliance shall be elevated not less than _____ unless it is listed as flammable ignition resistant
a) 6 feet
b) 18 inches
c) 4 feet
d) 24 inches

44. Transition ducts used to connect commercial dryers to exhaust duct shall be limited to ___ feet in length
a) 4
b) 3
c) 6
d) 8

45. A label shall be affixed to a gas appliance with all the following information except _____
a) BTUH rating
b) manufacture date
c) type of fuel used
d) minimum clearances

46. The miminum size supply line to an oil furnace shall be _____ inch.
a) 1/8
b) 1/16
c) 3/8
d) 1/4

47. A BLOWER WITH AN EXTERNAL STATIC PRESSURE OF .55" WC IS

CONNECTED TO A 70 FT. LONG DUCT. THE SYSTEM INCLUDES REGISTERS AND GRILLS (.03" WC EACH), A COOLING COIL (.15" WC) AND FILTER (.10" WC). WHAT IS THE TOTAL AVAILABLE STATIC PRESSURE REMAINING FOR SIZING THE DUCT?

a) .15" WC
b) .17" WC
c) .30" WC
d) .24" WC

48. WHAT IS THE VELOCITY OF 1400 CFM OF AIR IN A DUCT MEASURING 12" X 30"?

a) 467 FPM
b) 560 FPM
c) 3.8 FPM
d) 360 FPM

49. A system desgned to shut off the gas supply to the burners if the oxygen in the surrounding atmosphere is reduced to a predetermined level is called a _____

a) carbon dioxide detector
b) oxygen depletion shutoff system
c) automatic shut of valve
d) air regulator system

50. A 75,000 BTUH (INPUT RATING) 80% AFUE FURNACE HAS A TEMPERATURE RISE OF 45-DEGREES. WHAT IS THE CFM?

a) 1667
b) 1212
c) 1515
d) 1175

51. Appliances installed on roofs greater than _____ feet high must have a permanent means of access.

a) 18
b) 20
c) 16
d) 24

52. A fire damper install at a 2 hour fire rated wall shall have a minimum rating of _____ hours

a) 2
b) 1.5
c) 3
d) 1

53. Shield plates placed on studs to protect gas piping shall extend _____ inches to each side of the stud.

a) 1.5
b) 3
c) 4
d) 2

54. The minimum diameter of a close dryer duct shall be _____ inches
a) 6
b) 5
c) 3
d) 4

55. A location that cannot be accessed without damaging permanent parts of a building is called a/an _____ location
a) concealed
b) assessable
c) inaccessible
d) ready access

56. Screens used to protect intake openings for residential ventilation may not have a mesh less than____ inch.
a) 1/16
b) 1/2
c) 1/8
d) 1/4

57. THE MINIMUM INSULATION R-VALUE FOR REFRIGERANT LINES FOR A RESIDENCE IS ____.
a) R-3
b) R-2
c) 5-5
d) R-4

58. Close dryers exhausting more than ____ cfm must be provided with make up air
a) 150
b) 100
c) 200
d) 75

59. Which of the follow shall not share a type I hood
a) charcoal grille
b) griddle
c) deep fat fryer
d) pzza oven

60. Underfloor accesses must be a minimum 22 inches high by _____ inches wide

a) 30
b) 24
c) 28
d) 36

61. Closets containing close dryers must have a make up air opening not less than ____ square inches
a) 75
b) 100
c) 150
d) 50

62. Grease ducts in enclosures shall have a clearance of _____ inches to construction of non combustible gypsum attached to non combustible structures
a) 18
b) 12
c) 6
d) 3

63. Which of the following heating systems must have its efficiency posted on a certificate placed on or inside the electrical distribution panel of new residential construction
a) Electric baseboard
b) unvented room heater
c) gas furnace
d) electric furnace

64. A ventilation system in a 10,000 squire foot enclosed parking garage shall be capable of producing a minimum of _____ cfm
a) 10,000
b) 20,000
c) 5000
d) 7500

65. IN ORDER TO SUPPLY OUTDOOR COMBUSTION AIR USING THE TWO OPENING METHOD WITH HORIZONTAL DUCTS, WHAT DUCT SIZE BELOW WOULD BE THE MINIMUM NEEDED TO HANDLE A 140,000 BTUH FURNACE
a) 3.5" X 10"
b) 8.5" X 10"
c) 7" X 10"
d) 14' X 10"

66. Factory built fireplaces must be listed and labeled according to _____.
a) UL 348
b) UL127
c) UL 187
d) UL 124

67. A single wall chimney connector to a residential oil furnace shall have _____ clearance from combustibles

a) 9
b) 18
c) 36
d) 12

68. A plastic condensate pan must have a minimum thickness of _____ inch

a) .0250
b) .0625
c) .0375
d) .0276

69. If natural ventilation is used, a building, measuring 3000 square feet, must have a minimum openable area of _____ square feet.

a) 120
b) 150
c) 300
d) 450

70. Duct smoke detectors shall comply with_____.

a) UL 268
b) UL 181
c) ASTM 34
d) NFPA 72

71. A 2 inch diameter gas pipe must be purged with an inert gas before opening if it is greater than _____feet long.

a) does not need to be purged
b) 30
c) 50
d) 40

72. Unless protected by approved area smoke detectors, smoke detectors are required in the return air duct or plenum on any system with a design capacity greater than _____cfm.

a) 1500
b) 2000
c) 4000
d) 3000

73. IF A CONTRACTOR WORKS ON 15% PROFIT, WHAT WOULD HIS SALES HAVE TO BE TO MAKE $75,000?

a) $600,000
b) $112,000
c) $500,000

d) $862,500

74. A single wall low heat 6 inch diameter chimney connecter shall have a minimum thickness of _____gage
a) 22
b) 16
c) 26
d) 24

75. The verical distance between the front lower lip of a canapy-type I or II hood and the surface of the appliance shall not extend more than _____ feet
a) 3.6
b) 4
c) 2
d) 3

76. Vented wall furnaces shall be located so that a door cannot swing within _____ inches of the air inlets or outlets of such furnace measures at right angles to the openings
a) 12
b) 18
c) 36
d) 24

77. FUEL FIRED APPLIANCES SHALL NOT BE LOCATED IN _____.
a) BASEMENTS
b) BEDROOMS
c) LIVING ROOMS
d) KITCHENS

78. THE VELOCITY OF 250 CFM OF AIR IN A FLEXIBLE, SPIRAL WIRE HELIX CORE DUCT SIZED AT .08" WC STATIC PRESSURE IS _____.
a) 500 FPM
b) 900 FPM
c) 400 FPM
d) 750 FPM

79. Which of the following is not required for a heat pump installation
a) load calculation
b) programmable thermostat
c) a permit
d) a means of controlling electric resistance heat from operating when the heat pump can handle the load

80. Type I exhaust outlets that terminate above a roof shall have a discharge outlet not less than ___ inches above the roof surface
a) 36

b) 30
c) 48
d) 40

81. A CUSTOMER MOVES UP FROM AN 8 SEER TO A 13 SEER AIR CONDITIONER. WHAT WOULD HIS YEARLY SAVING BE IF HE WAS PAYING $650 PER YEAR FOR AIR CONDITIONING
a) $197
b) $325
c) $250
d) $260

82. A CEILING HAS A TOTAL U-VALUE OF .07. WHAT IS THE NEW R-VALUE IF R-19 IS ADDED?
a) 33.28
b) 32.28
c) 30.28
d) 31.28

83. The control side of a floor furnace must have a minimum _____inches clearance
a) 24
b) 18
c) 20
d) 12

84. Which of the following must have a flame spread distance no greater than 5 feet when installed in plenums.
a) pneumatic tubing
b) wiring
c) all the above
d) fire sprinkler piping

85. The maximum size unvented gas heater that may be installed in a residential bathroom measuring 1600 cubic feet is_____btuh
a) 8000
b) 4000
c) 3000
d) 6000

86. The slope of a 24 foot horizontal grease duct must be at least ___ inch.
a) 1/8
b) 1/4
c) 3/4
d) 1/2

87. If a water level detection device is used in an auxiliary drain pan it must conform to_____.

a) ASTM 243
b) UL 508
c) UL 181
d) ASI 84

88. The vent cap of an oil tank must have a screen mesh no finer than No. _____

a) 10
b) 4
c) 6
d) 8

89. WHAT IS THE DESIGN FRICTION RATE WHEN THE AVAILABLE STATIC PRESSURE FOR THE DUCT SYSTEMIS .36" WC AND THE RUN WITH THE LONGEST EFFECTIVE LENGTH IS 375 FEET?

a) .05" WC
b) .08" WC
c) .15" WC
d) .10" WC

90. Passageways in attics shall not be less than _____ inches wide

a) 24
b) 20
c) 30
d) 22

91. IN A ROOM THAT IS LARGE IN COMPARISON WITH THE SIZE OF THE EQUIPMENT, AN APPLIANCE THAT REQUIRES 18" CLEARANCE ON ITS SIDES, MAY HAVE ITS CLEARANCE REDUCED TO _____ IF .024" SHEETMETAL WITH A VENTILATED AIR SPACE IS USED TO PROTECT THE COMBUSTIBLE SURFACE.

a) 6
b) MAY NOT HAVE CLEARANCE REDUCED
c) 12
d) 9

92. A vertical pipe supplying gas is a_____

a) riser
b) leader
c) upright
d) standpipe

93. Copper piping shall not be used if the gas contains more than __ grains of hydrogen sulfide per 100 standard cubic feet.

a) .3

b) 3
c) .5
d) 6

94. Brazing alloys used on gas piping shall not contain more than_____ percent phosphorus
a) .005
b) .5
c) 5
d) .05

95. Duct insulation installed within ____inches of a type I hood shall be noncombustible or be listed for the application
a) 18
b) 6
c) 12
d) 24

96. The minimum distance between the cooking surface and a grease filter serving burners with flames is _____ feet
a) 1
b) 3.5
c) .5
d) 2

97. The minimum thickness for a 14 inch round galvanized air duct is _____ at .5" wc.
a) .012
b) .013
c) .016
d) .018

98. FOR A BUILDING TO BE MAINTAINED AT 70 F, HOW MANY BTUH ARE REQUIRED TO OFFSET 300 CFM OF 20 F OUTDOOR VENTILATION?
a) 16,500
b) 6,600
c) 6,000
d) 1.400

99. The maximum operating pressure of LP gas systems shall not exceed ____ PSI 30when installed within a residence
a) 30
b) 20
c) 12
d) 5

100. THE AMERICANS WITH DISABILITIES ACT APPLIES TO ALL EMPLOYERS WHO HAVE _____ OR MORE EMPLOYEES

a) 25
b) 15
c) 50
d) 10

101. Flexible air ducts_____.
a) shall not be limited in length
b) shall be limited to 14 feet in length
c) shall be labeled 181-B
d) May convey air at up to 275 degrees

102. The minimum allowable HSPF rating of an air cooled residential heat pump is _____
a) 7.0
b) 8.2
c) 6.8
d) 7.7

103. A 500 SQUARE FOOT CONFERENCE ROOM REQUIRES _____CFM OF OUTDOOR VENTILATION
a) 500
b) 250
c) 750
d) 150

104. When mechanically ventilating a 1500 square foot conference room in an office building, how many CFM of outdoor air are required?
a) 1500
b) 1000
c) 50
d) 3000

105. Access points for inspecting and servicing fire dampers shall be labeled FIRE DAMPER with letter no less than _____ inch/s high
a) .5
b) .75
c) 2
d) 1

106. Unless protected from vehicle impact, appliances shall be installed a minimum _____ feet above the floor of a private garage
a) 6
b) 5
c) 8
d) 9

107. Cleanouts located on horizontal grease ducts shall be placed not more than

____feet apart
a) 100
b) 15
c) 20
d) 10

108. Ducts shall not be installed within ____ inches of earth.
a) 4
b) 3
c) 5
d) 6

109. THE DISTANCE FROM A METER TO A NATRUAL GAS WATER HEATER (40,000 BTUH) IS 30 FEET. 20 FEET FURTHER DOWN THE LINE IS A FURNACE (120,000 BTUH). WHAT IS THE MINIMUM PI[E SIZE THAT MUST BE USED BETWEEN THE WATER HEATER AND FURNACE? (PRESSURE LESS THAN 2 LBS, PRESSURE DROP = .05)?
a) 1/2"
b) 3/4"
c) 1"
d) 3/8"

110. A gas regulator that reduces incoming pressure between .5 and 5 psig to a lower pressure is called a _____.
a) low pressure regulator
b) service entrance regulator
c) high pressure regulator
d) medium pressure regulator

111. A HEAT PUMP IN A RESIDENCE MUST BE CONTROLLED BY WHICH OF THE FOLLOWING?
a) A PROGRAMABLE THERMOSTAT
b) A DEVICE TO PREVENT SUPPLEMENTARY HEAT FROM COMING ON IF HEAT PUMP CAN HANDLE THE LOAD ALONE
c) A DEVICE THAT ALLOWS SUPPLEMENTARY HEAT OPERATION DURING DEFROST CYCLES EXCEEDING 15 MINUTES
d) A FOSSIL FUEL KIT

112. When bending metallic gas pipe, the inside radius shall not be less than _____ times the diameter
a) 6
b) 10
c) 5
d) 25

113. THE LARGEST A BORED HOLE MAY BE IN A 2' x 9.5" joist is

a) 3.14"
b) 3.31"
c) 3"
d) 2.85"

114. When aluminum foil is used as a vapor retarder for duct insulation it must be minimum
_____ mils thick
a) 4
b) 2
c) 1
d) 6

115. A label shall be affixed to the gas appliance with all the following information except _____
a) BTUH rating
b) type of fuel used
c) manufacture date
d) minimum clearances

116. Exhausted environmental air must be _____ feet from mechanical intakes
a) 12
b) 8
c) 3
d) 10

117. THE MAXIMUM BTUH RATING OF AN UNVENTED GAS HEATER INSTALLED IN A 15 X 20 ROOM WITH 8 FOOT CEILINGS IS (infiltraion rate is greater than .40 ACH)?
a) 48,000
b) 40,000
c) 24,000
d) 6,000

118. Liquid adhesive used on air filters shall have a flsh point no lower than _____ degrees F
a) 230
b) 275
c) 250
d) 325

119. Unless welded or placed in a ventilated shaft, the maximnm operating pressure of gas piping in a residence shall not exceed _____ psig
a) .5
b) 10
c) 2
d) 5

120. Duct lining shall be interupted _____ inches downstream of a duct heater
a) 6
b) 12
c) 10
d) 4

121. TWO NATURALLY VENTILATED APPLIANCES WITH A COMBINED CAPACITY OF 130,000 BTUH ARE CONNECTED TO A COMMON B-VENT, 18' HIGH WITH TWO 90-DEGREE ELBOWS. WHAT SIZE COMMON VENT SHOULD BE USED?
a) 5"
b) 7"
c) 4"
d) 6"

122. Shield plates on studs must be a minimum ____ - inch thick
a) .087
b) .025
c) .075
d) .062

123. A floor furnace shall be placed such that a drapery can be no nearer than _____ to the register of the furnace
a) 18
b) 12
c) 6
d) 8

124. Corridors are generaly not permitted to be used as return ducts, however the hallway of a tenant space _____ square feet or less may be used for return air.
a) 1200
b) 500
c) 750
d) 1000

125. Where holes or notches for gas tubing are less than 1.5 inches from the nearest edge of a wood stud, they must be protected by metal shields not less than ____inch thick.
a) .0625
b) .0525
c) .0575
d) .0735

126. The minimum cross-sectional dimension of a combustion air duct shall be _____ inches

a) 3
b) 8
c) 4
d) 6

127. The highest point of an attic must be at least ___inches in order to be used as a source for combustion air
a) 28
b) 30
c) 24
d) 36

128. A gas line serving a grill may be buried a minimum _____ inches as long as it is approved and not susceptible to physical damage
a) 8
b) 12
c) 6
d) 16

129. Which rooftop appliance does not require guardrail protection?
a) one located 3 feet form roof edge
b) one located 6 feet from roof edge
c) one located 10 feet from roof edge
d) one located 12 feet from roof edge

130. When obtaining combustion air from an attic, a minimum 26 gage galvanized sheet metal sleeve must be used and extended _____ inches above the joists and insulation(2012 code and earlier)
a) 6
b) 2
c) 8
d) 4

131. A HOUSE HAS A HEAT LOSSS OF 48,000 BTUH AT 20-DEGREE OUTDOOR TEMPERATURE. WHAT IS THE HEAT LOSS AT 40-DEGREE OUTDOOR TEMPERATURE?
a) 18,000 BTUH
b) 124,000 BTUH
c) 19,200 BTUH
d) 28,800 BTUH

132. Duct insulation shall have the R value printed every_____ inches
a) 60
b) 36
c) 48
d) 24

133. A CONTRACTOR PAYS $750 FOR A FURNACE PLUS 7% TAX. WHAT WOULD HIS SALES PRICE BE IF HE WISHED TO MAKE 30% GROSS PROFIT?

a) $1028
b) $1146
c) $1043
d) $975

134. A 30' X 8' PARTITION (2 X 4 STUDS, GYPSUM ON BOTH SIDES, NO INSULATION) SEPARATES TWO ROOMS HAVING A TEMPERATURE DIFERENCE OF 20 DEGREES. WHAT IS THE WINTER HEAT LOSS THROUGH THE PARTITION?

a) 3,535 BTUH
b) 15,360 BTUH
c) 1,500 BTUH
d) 2,609 BTUH

135. Which of the following gas piping materials shall not be used in exterior locations or underground

a) steel
b) plastic
c) brass
d) aluminum

136. This question eliminated

a) ?
b) ?

137. Gas piping installed underground beneath buiding may not be incased in _____.

a) cement
b) steel pipe
c) plastic pipe
d) wrought iron conduit

138. Floor registers must support _____lbs consentrated load on a 2 inch disk applied at its most critical area

a) 100
b) 250
c) 150
d) 200

139. AN AIR CONDITIONER HAS HIGH SUCTION AND A LOW HEAD PRESSURES. WHAT WOULD BE A LIKELY CAUSE?

a) DIRTY CONDENSER COIL
b) DIRTY FILTERS
c) CLOGGED METERING DEVICE

d) BAD OR WEAK COMPRESSOR VALVES

140. When cutting threads, a 3/4 inch pipe shall have approximately _____ treads cut
a) 12
b) 11
c) 10
d) 13

141. Type I grease ducts shall have a clearance of _____ inches to combustible construction
a) 18
b) 3
c) 6
d) 12

142. Grease ducts shall provide an air velocity not less than _____ feet per minute
a) 400
b) 750
c) 250
d) 500

143. IF PROTECTION FROM VEHICLE IMPACT IS NOT PROVIDED, APPLIANCES INSTALLED IN PRIVATE GARAGES MUST BE INSTALLED _____ FEET ABOVE THE FLOOR.
a) 7
b) 6
c) 8
d) 5

144. THE MAXIMUM HORIZONTAL LENGTH OF A SINGLE WALL CONNECTOR IS _____% OF THE HIEGHT OF THE CHIMNEY OR VENT.
a) 50
b) 100
c) 75
d) 150

145. Condensate piping must no be less than _____ inch diameter
a) 3/4
b) 1/2
c) 5/8
d) 1

146. The unthreaded portion of a gas piping outlet shall not extend less then _____ through a slab floor
a) 1.5

b) 3
c) 2
d) 1

147. A DOUBLED UP STUD IN A LOAD BEARING WALL MAY HAVE A HOLE BORED UP TO _____% OF IT DEPTH
a) 25
b) 40
c) 60
d) 15

148. A vent is not _____
a) site made
b) a passage way for carrying combustion products
c) factory made
d) listed and labeled

149. A HOUSE HAS A HEATING LOAD OF 48,000 BTUH. HOW MANY CFM ARE REQUIRED FOR A ROOM WITH A HEAT LOAD OF 5200 BTUH, USING A FURNACE WITH A 1200 CFM BLOWER?
a) 468
b) 112
c) 130
d) 1112

150. A home must be provided with a space heating system capable of maintaing a minimum indoor temperature of _____ degree at a point 3 feet obove the floor level on a design heating day
a) 78
b) 70
c) 75
d) 68

151. An appliance that causes a positive vent pressure and produces excessive condensation in the vent is a Catagory _____ appliance
a) II
b) IV
c) I
d) III

152. Pressure sensitve tapes used on flexible ducts shall be lableled as conforming to _____
a) UL 181 A
b) UL 181-FX
c) UL 181 A-P
d) UL 181 B

Answers

1. c 404.Tracer
2. b Table 403.3
3. c section 406 (5 x test pressure)
4. a section 602
5. d section 914
6. b section 401
7. c Chapter 2 Definitions
8. d section 304 (6 x10 = 60 sq. in., 60/.75 = 80 sq. in.)
9. d Chapter 2 definitions of "regulator, medium pressure"
10. d section 802 imc
11. d section 701 imc (2006 and earlier, Not in 2009 or 2012 codes)
12. d section 507 (300 X 5 ft = 1500 cfm)
13. a section 505 (exception includes PVC in some cases)
14. a section 304.9 Gas code (This answer is not found in some codes)
15. c R 403. Energy Code

1500 sq. ft. / 100 = 15

15 x 4 =60 cfm

16. c 404.14 Limitations. IFGC
17. c 411.1 gas code
18. d 409 gas code IFGC
19. a section 303 IMC
20. a 404 gas code
21. d Table 305.4 IMC
22. b definitions-listed
23. b section 507 IMC
24. c Chapter 2 definition "recovered refrigerant" mech code
25. c SECTION 503 LENGTH OF VENT CONNECTOR, GAS CODE
26. a R 303 Energy Code
27. b 302 MECH CODE

28 a TABLE 503.4 gas code

29. a 1102. mech code
30. b 1,000,000/140,000 = 7.143 gals

    7.143/.80 = 8.928 gals @ 80% efficiency

    8.928 x $1.25 = $11.60

31. c Table 415.1 gas code
32. a section 307 IMC
33. a Manual D rectangular to round tables or use duct calculator.
34. c 411 gas code
35. a section 914 IMC

36. b section R403 energy code

37. a 403 gas code

38. a section 504 IMC (35 feet minus 5 feet for each 90 degree bend)

    Note: some older code allow for a max of 45 feet with a penalty of 10 feet for each 90 degree bend

39. a 80,000/(1000 x 1.1) = 72.7F

40. c Chapter 2, definitions gas code

41. a See "confined space " definition, 2006 IFGC. Note: confined space is no longer a defined term in the 2009 or later codes

42. a Energy Code

43. b 305 gas code

44. d. section 504 IMC

45. b section 301 IMC

46. c section 1305 IMC

47. d .55 - .03- .03 - .15 -.10 = .24' wc

48. b vel - cfm/ area in sq. ft.

    12" x 30" = 360 sq. in.

    360 sq. in / 144 = 2.5 sq. ft.

49. b chapter 2 definitions, gas code

50. b CFM = BTUH / (TR x 1.1)

    bthu = 75,000 x .80 = 60,000

51. c 306 mech code

52. b Table 607.3.2.1

53. c 404 gas code
54. d section 504 IMC
55. a Chapter 2 mech code "concealed location" definition
56. d Table 401.5 IMC
57. a section 403 energy code
58. c section 504 IMC
59. a Section 507 IMC(charcoal grille is *extra heavy duty*, see definitions)
60. a section 306 IMC
61. b section 504 IMC
62. c section 506 Grease duct enclosure
63. c section R401 energy code
64. d section 404 IMC (10,000 x .75 = 7500)
65. c 304 IMC, 140,000/2000 = 70 square inches, 7 x 10 =70 square inches(Gas Code)
66. b section 903 IMC
67. b Table 803.10.6 IMC
68. b section 307
69. a section 402 IMC (3000 X .04 = 120)
70. a section 606 IMC
71. a table 406.7.1 gas code
72. b section 606 IMC
73. c $75,000/.15 = $500,000
74. d Tabel 803.9(1) IMC
75. b section 507 IMC
76. a section 909 IMC

77. b 303 mechanical code

78. a use friction chart or ductulator

79. b section 403 energy code

80. d Section 506 IMC

81. c 8/13 = .615

    .615 x 650 = 400 op cost of new a/c

    650- 400 = $250 savings

82. a Only R values can be added or subtracted, therefore, convert the U value

    to R value 1/.07= 14.28

    add R 19 + R 14.28 = R 33.28

83. b section 910 IMC

84. c section 602 IMC

85. d 303.3 exception 3, and 304.5.1 gas code

    (6000/1000) x 50 = 300 cubic feet minimum bath size

86. d section 506 IMC (24 / 12 = 2, 2 x 1/4" = 1/2")

87. b section 307 IMC

88. b section 1305 IMC

89. d .36 x100/375 = .096 (rounded to .10) manual d

90. d section 306 IMC

91. a Table 308.6

92. a Defintions, gas code

93. a section 403 IFGC

94. d section 403 IFGC

95. a section 506 IMC

96. d Table 507 IMC

97. b Table 603.4

98. a 70F-20F = 50F TD

    BTUH = CFM x 1.1 x TD

    = 300 x 1.1 x 50

99. d 402 gas code

100. b NASCLA business book or look up ADA

101. a section 603 IMC (flexible connectors must be limited to 14 feet, not ducts)

102. d Table C403.2.3 (2) energy code

103. a Table 403.3 mech code

    table assumes 50 people /1000 sq ft

    Therefore 25 people would occupy 500 sq ft

    25 people x 20 cfm/person = 500 cfm

104. a Tablle 403.3 IMC (1500/1000 = 1.5, 1.5 x 50 people = 75 people, 75 x 20 cfm = 1500 cfm)

105. a section 607 IMC

106. a section 304 IMC

107. c section 506 IMC

108. a Section 603 IMC

109. b See "longest length method" in gas code appendix

110. d section 202 IFGC

111. b 2012 energy code only

112. a 405 gas code

113. a 302 gas code

114. b section 604 IMC

115. c 301 gas code

116. d section 501 IMC

117. a 304.5.1 gas code

    15 x 20 x 8 = 24,000 cubic ft.

    24,000 / 50 = 48

118. d section 605 IMC

119. d section 402 IFGC

120. a section 604 IMC

121. d Use Table 504.3(1), IFGC, Remember to use the 15 ft. height not 20 ft.

122. d section 305 IMC (2009-2012 says .0575)

123. b section 910 IMC

124. d section 601 IMC

125. c 404.5 gas code

126. a section 708 IMC, also 304.6 IFGC

127. b section 701 IMC

128. a 404.9.1 gas code

129. d section 304 IMC, says "within" 10 feet

130. a section 701 IMC

131. d 48,000 btuh/ 50 degree TD = 960 btuh heat loss per degree TD

    new TD 70F-40F = 30

    30 DTD x 960 btuh/ DTD = 28,800 btuh

132. b section 604 IMC

133. b $750 x .07 = $52.50

$750.00 + 52.50 = $802.50

100%-30% = 70% 0r .70

802.50/.70 = $1146.42

134. c still air surface = .68

gypsum = .45

air space = .91

gypsum = .45

still air surface = .68

Total R = 3.17

U = 1/3.17 = .315

wall is 240 square feet (30 x 8)

BTUH = area x U x td

240 x .315 x 20 = 1512 (close enough)still air surface = .68

135. d 403 gas code

136. This question eliminated

137. a 404 gas code

138. d section 603 IMC

139. d see any service manual

140. c Table 403.9.2 gas code

141. a section 506 IMC

142. d section 506 IMC

143. b 305 gas code

144. c 503.10._ gas code

145. a section 307 IMC

146. c 404 gas code

147. c 302 mech code

148. a see definition "vent", gas code

149. c Room cfm = HF X room heat lose

     HF factor = 1200/48,000

     HF= .025

     Therefore: .025 x 5200 = 130 cfm

150. d section 309 IMC

151. b Gas Code definitions "vented appliance categories"

152. a Section 603 IMC