Instructions:

1. Print these pages.
2. Circle the correct answers and transfer to the answer sheet on the second last page.
3. Page down to the last page for the verification forms and mailing instructions.

hvacdef120 Course #13585 4 hours for UHI & CBI Fees $40

Use this Construction/HVAC Glossary to answer the questions below.

1. • ABSOLUTE HUMIDITY - The weight of water vapor in a given amount of air.
2. • ABSOLUTE PRESSURE - Pressure measured with the base of zero.
3. • ABSOLUTE TEMPERATURE - A temperature scale expressed in degrees ^{o}F or ^{o}C using absolute zero as a base. Referred to as the Rankin or Kelvin scale.
4. • ABSOLUTE ZERO - The temperature at which molecular activity theoretically ceases. -456.69 F^{0} or -273.16 ^{o}C.
5. • AIR CONDITIONING - The process of controlling the temperature, humidity, cleanliness and distribution of the air.
6. • AIR, Conditions at which capacity ratings for air conditioning equipment is rated.
7. • AMBIENT - Refers to the temperature surrounding a body or unit under test.
8. • ATMOSPHERIC PRESSURE - The weight of a 1 unit column of the earth's atmosphere.
9. • BIMETAL - Two metals with different rates of expansion fastened together. When heated or cooled they will warp and can be made to open or close a switch or valve.
10. • BOILING POINT - The temperature at which the addition of any heat will begin a change of state from a liquid to a vapor.
11. • BRITISH THERMAL UNIT (BTU) - The amount of heat necessary to change the temperature of 1 pound of pure water 1 degree Fahrenheit (^{o}F).
12. • CAPILLARY TUBE - A refrigerant control consisting of a small diameter tube which controls flow by restriction. They are carefully sized by inside diameter and length for each particular application.
13. • CENTIGRADE - A temperature scale with the freezing point of water 0 ^{o}C and the boiling point 100 ^{o}C at sea level.
14. • CHECK VALVE - A valve designed to permit flow in one direction only.
15. • COMPRESSION - The reduction of volume of a vapor or gas by mechanical means.
16. • COMPRESSION RATIO - The ratio determined by dividing the discharge pressure, in PSI (Pa), by the suction pressure in PSI (Pa).
17. • COMPRESSOR - A mechanical device used to compress gases. Three main types - reciprocating, centrifugal and rotary.
18. • CONDENSATION POINT - The temperature at which the removal of any heat will begin a change of state from a vapor to a liquid.
19. • CONDENSING MEDIUM - The substance, usually air or water, to which the heat in a condenser is transferred.
20. • CONDENSING UNIT - The portion of a refrigeration system where the compression and condensation of refrigerant is accomplished. Sometimes referred to as the 'high side'.
21. • CONDUCTION - The transfer of heat from molecule to molecule within a substance.
22. • CONTACTOR - An electromagnetic actuated relay. Usually used to refer to the relay which closes the circuit to a compressor.
23. • CONVECTION - The transfer of heat by a moving fluid.
24. • COOLING ANTICIPATOR - A resistance heater (usually not adjustable) in parallel with the cooling circuit. It is 'on' when the current is 'off'', adding heat to shorten the off cycle.

25. • COP - Ratio of work performed or accomplished as compared to the energy used.
26. • CUBIC FEET PER MINUTE - A common means of assigning quantitative values to volumes of air in transit, usually abbreviated CFM.
27. • CYCLE - The complete course of operation of a refrigerant back to a selected starting point in a system.
28. • DENSITY - Mass or weight per unit of volume.
29. • DISCHARGE LINE - A tube used to convey the compressed refrigerant vapor from the compressor to the condenser inlet.
30. • DISCHARGE PRESSURE - The pressure read at the compressor outlet. Also called head pressure or high side pressure.
31. • DRY AIR - Air which contains no moisture vapor.
32. • DRY BULB TEMPERATURE - Temperature read with an ordinary thermometer.
33. • EFFECTIVE TEMPERATURE - An arbitrary concept which combines into a single value the effect of temperature, humidity, and air movement as sensed by the human body.
34. • ENTHALPY - Total amount of heat in one pound (kg) of a substance calculated from accepted temperature base, expressed in BTU's per pound mass (J/kg).
35. • EQUIVALENT LENGTH - That length of straight tubing which has the same pressure drop as the fitting, valve or accessory (of the same nominal size) being considered.
36. • EVAPORATIVE COOLING - The cooling effect of vaporization of a liquid in a moving air stream.
37. • EVAPORATOR - A device in which a liquid refrigerant is vaporized. Some superheating usually takes place.
38. • EVAPORATOR SUPERHEAT - The actual temperature of the refrigerant vapor at the evaporator exit as compared to the saturated vapor temperature indicated by the suction pressure.
39. • EXTERNAL STATIC PRESSURE - The sum of the static and velocity pressures of a moving air system at the point of measurement.
40. • FAHRENHEIT - A temperature scale with the freezing point of water 32^0 F and the boiling point 212^0 F at sea level.
41. • FEET PER MINUTE - A term assigned to a velocity of a moving air stream, usually express FPM.
42. • FILTER-DRIER - A device that removes moisture, acid and foreign matter from the refrigerant.
43. • FLASH GAS - Instantaneous evaporation of some liquid refrigerant at the metering device due to pressure drop which cools the remaining liquid refrigerant to desired evaporation temperature.
44. • FREEZING POINT - The temperature at which the removal of any heat will begin a change of state from a liquid to a solid.
45. • GAUGE PRESSURE - Pressure measured with atmospheric pressure as a base.
46. • HEAT - A form of energy causing the agitation of molecules within a substance.
47. • HEAT EXCHANGER - A device for the transfer of heat energy from the source to the conveying medium.
48. • HEAT FLOW - Heat flows from a warmer to a cooler substance. The rate depends upon the temperature difference, the area exposed and the type of material.
49. • HEAT OF COMPRESSION - The heat added to a vapor by the work done on it during compression.
50. • HEAT OF THE LIQUID - The increase in total heat (Enthalpy) per pound of a saturated liquid as its temperature is increased above a chosen base temperature. (Usually - 40^0F for refrigerants).
51. • HEAT TRANSFER - The three methods of heat transfer are conduction, convection and radiation.
52. • INCHES OF MERCURY - Atmospheric pressure is equal to 29.92 inches of mercury.

53. • LATENT HEAT - Heat that produces a change of state without a change in temperature; i.e., ice to water at 32 ^{o}F or water to steam at 212 ^{o}F.
54. • LATENT HEAT OF CONDENSATION - The amount of heat energy in BTU's that must be removed to change the state of one pound of a vapor to one pound of liquid at the same temperature.
55. • LATENT HEAT OF FUSION - The amount of heat energy, in BTU's required to change the state of one pound of a liquid to one pound of solid at the same temperature.
56. • LATENT HEAT OF MELTING - The amount of heat energy, in BTU'S, that must be removed to change the state of one pound of solid to one pound of vapor at the same temperature.
57. • LATENT HEAT OF VAPORIZATION - The amount of heat energy in BTU's required to change the state of one pound of a liquid to one pound of vapor at the same temperature.
58. • LIFT - To elevate a fluid from one level to a higher level.
59. • LIQUID LINE - A tube used to convey the liquid refrigerant from the condenser outlet to the refrigerant control device of the evaporator.
60. • MANOMETER - A tube filled with a liquid used to measure pressures.
61. • MBH - One MBH is equivalent to 1,000 BTU's per hour.
62. • MEAN TEMPERATURE DIFFERENCES - The mean of difference between the temperature of a fluid receiving and a fluid yielding heat.
63. • MELTING POINT - The temperature at which the addition of any heat will begin a change of state from a solid to a liquid.
64. • MERCURY MANOMETER - Used to measure vacuum in inches of mercury.
65. • MICRON - A unit used to measure high vacuums. One micron equals 1/25,400 of one inch mercury.
66. • MUFFLER - Device installed in hot gas line to silence discharge surges.
67. • OIL SEPARATOR - A device for separating out oil entrained in the discharge gas from the compressor and returning it to the crankcase.
68. • PARTIAL PRESSURE - The pressure exerted by any individual gas in a mixture.
69. • PITCH - The slope of a pipe line for the purpose of improving drainage.
70. • PITOT TUBE - A device comprising a small diameter orifice projecting directly into an air stream measuring total pressure and surrounded by an annular section with small diameter entrances normal to the flow, measuring static pressure; both sections are usually connected to a manometer to indicate velocity pressure.
71. • PRECHARGED LINES - Refrigerant line's which are filled with refrigerant and are sealed at both ends. The seals are broken when the lines are installed and the line charge becomes part of the total system charge.
72. • PRESSURE DROP - The decrease in pressure due to friction of a fluid or vapor as it passes through a tube or duct or/and lift.
73. • PRESSURE - TEMPERATURE RELATIONSHIP - The change effected in temperature when pressure is changed or vice versa. Only used at saturated conditions. An increase in pressure results in a temperature increase. A decrease in temperature results in a pressure decrease.
74. • PUMPDOWN - Process of pumping refrigerant out of the evaporator and suction line at the end of the on- cycle by closing a solenoid valve in the liquid line and letting the compressor shut-off by the low pressure control.
75. • PSYCHROMETER - A devices having both a dry and wet bulb thermometer. It is used to determine the relative humidity in a conditioned space. Most have an indexed scale to allow direct conversion from the temperature readings to the percentage of relative humidity.
76. • PSYCHROMETRIC CHART - A chart on which can be found the properties of air under varying conditions of temperature, water vapor content, volume, etc.

77. • QUICK CONNECT - Name given to the end connections on precharged lines which screw on to mated fittings of the outdoor and indoor sections. Tightening the quick connections ruptures the seals on the fittings and the line charge becomes part of the total system charge.
78. • RADIATION - The transfer of heat without an intervening medium. It is absorbed on contact with a solid surface.
79. • RECEIVER - A vessel for holding refrigerant liquefied by the condenser.
80. • REFRIGERANT - A substance which produces a refrigerating effect while expanding or vaporizing.
81. • REFRIGERANT CONTROL - A device used to meter the amount of refrigerant to an evaporator. It also serves as a dividing point between the high and low pressure sides of the system.
82. • REFRIGERANT DISTRIBUTOR - A device which meters equal quantities of refrigerant to independent circuits in the evaporator coil.
83. • REFRIGERANT MIGRATION - The movement of refrigerant through the system to the compressor crankcase during the off-cycle, caused by its attraction to oil.
84. • REFRIGERANT OPERATING CHARGE - The total amount of refrigerant required by a a system for correct operation.
85. • REFRIGERANT VELOCITY - The rate at which refrigerant is moving at a given point in a system, usually given in feet per minute (FPM).
86. • REFRIGERATION - The transfer of heat from a place where it is not wanted to a place where its presence is not desirable.
87. • REFRIGERATION EFFECT - The amount of heat a given quantity of refrigerant will absorb in changing from a liquid to a vapor at a given evaporating pressure.
88. • RELATIVE HUMIDITY - The percentage of water vapor present in a given quantity air compared to the amount it can hold at its temperature.
89. • RELAY - A device used to open and close an electrical circuit. The relay may may be actuated by a bimetal electrically heated strip, a rod wrapped with a fine resistance wire causing expansion when energized, a bellows actuated by expansion of a fluid or gas or an electromagnetic coil.
90. • REVERSING VALVE - A device in a heat pump that is electrically controlled to reverse the flow of refrigerant as the system is switched from cooling to heating; also called a four-way valve.
91. • RISER - A vertical tube or pipe which carries refrigerant in any form from a lower to a higher level.
92. • SATURATED VAPOR - Vapor in contact with a liquid.
93. • SATURATION - A condition of stable equilibrium of a vapor and a liquid.
94. • SENSIBLE HEAT - Heat that can be measured or felt. Sensible heat always causes a temperature rise.
95. • SIGHT GLASS - A glass installed in the liquid line permitting visual inspection of the liquid refrigerant for the purpose of detecting vapor in the liquid. They also generally have a device included to monitor moisture content of the refrigerant.
96. • SLUGGING - A condition in which a quantity of liquid enters the compressor causing hammering and possible compressor damage.
97. • SPECIFIC HEAT - VACUUM The amount of heat necessary to change the temperature of one pound of a substance 1^0 F.
98. SPECIFIC VOLUME - The volume of a substance per unit of mass; i.e., standard air 13.33 cubic feet per pound. The reciprocal of density.
99. • STANDARD AIR DENSITY - .075 pounds per cubic foot. Equivalent to dry air at 70^0 F and at sea level pressure.
100. • STATE CONDITION - Substances can exist in three states - solid, liquid or vapor.
101. • STATIC PRESSURE - The normal force per unit area at a small hole in the wall of a duct.

102. • STATIC TAP - A means by which static pressures of a duct system may be read directly, usually consisting of a small diameter hole in the side of the duct connected to a manometer.
103. • SUB COOLING - Cooling of a liquid, at a constant pressure, below the point at which it was condensed.
104. • SUBLIMATION - A condition where a substance changes from a solid to a gas without becoming a liquid.
105. • SUCTION LINE - A tube used to convey the refrigerant vapor from the evaporator outlet to the suction inlet of compressor.
106. • SUCTION LINE ACCUMULATOR - A device located in the suction line that intercepts quantities of a liquid refrigerant and thereby prevents damage to the compressor.
107. • SUPERHEAT - Heat added to a vapor after all liquid has been vaporized.
108. • TEMPERATURE - A measurement of heat intensity.
109. • THERMISTOR - Basically a semiconductor which has electrical resistance that varies inversely with temperature.
110. • THERMOSTAT - A bimetal actuated switch to close and open a circuit to indicate or terminate operation of a heating or air conditioning system.
111. • THERMOSTATIC EXPANSION VALVE - Refrigerant control which monitors the flow rate according to the superheat at the evaporator outlet.
112. • TON OF REFRIGERATION - The amount of heat necessary to completely melt one ton of 32ºF ice in 24 hours.
113. • TOTAL HEAT (Enthalpy) - Total heat energy in a substance. The sum of sensible and latent heat.
114. • TOTAL PRESSURE - The sum of all partial pressures in a mixture of gases.
115. • TRAP - A depression or dip in refrigerant piping in which oil will collect. A trap may be placed at the base of a suction or hot gas riser to improve oil return up the riser.
116. • VACUUM - Any pressure below atmospheric pressure.
117. • VAPOR BARRIER - The term applied to an impervious layer of material superimposed upon a layer of insulation. Vapor barriers are always applied on the warm side of the insulation layer.
118. • VAPOR PRESSURE - The pressure exerted by vapor.
119. • VELOCITY PRESSURE - In a moving fluid, the pressure capable of causing an equivalent velocity as applied to move the same fluid through an orifice such that all pressure energy expanded is converted into kinetic energy.
120. • WATER MANOMETER - Used to measure pressure in inches of water.
121. • WET BULB TEMPERATURE - Temperature read with a thermometer whose bulb is encased in a wetted wick.

Match the definition to the correct word or phase

1. The total amount of refrigerant required by a system for correct operation.
    a. REFRIGERANT OPERATING CHARGE
    b. REFRIGERANT
    c. REFRIGERANT MIGRATION
    d. REFRIGERANT DISTRIBUTOR

2. A device used to open and close an electrical circuit. The relay may be actuated by a bimetal electrically heated strip, a rod wrapped with a fine resistance wire causing expansion when energized, a bellows actuated by expansion of a fluid or gas or an electromagnetic coil.
    a. RISER
    b. TRAP
    c. RELAY
    d. VACUUM
3. In a moving fluid, the pressure capable of causing an equivalent velocity as applied to move the same fluid through an orifice such that all pressure energy expanded is converted into kinetic energy.
    a. VELOCITY PRESSURE
    b. GAUGE PRESSURE
    c. VAPOR PRESSURE
    d. VACUUM
4. Process of pumping refrigerant out of the evaporator and suction line at the end of the on-cycle by closing a solenoid valve in the liquid line and letting the compressor shut-off by the low pressure control.
    a. VELOCITY PRESSURE
    b. PRESSURE DROP
    c. VAPOR PRESSURE
    d. PUMPDOWN
5. A temperature scale with the freezing point of water 32^0 F and the boiling point 212^0 F at sea level.
    a. FAHRENHEIT
    b. BRITISH THERMAL UNIT
    c. CENTIGRADE
    d. LATENT HEAT
6. Heat flows from a warmer to a cooler substance. The rate depends upon the temperature difference, the area exposed and the type of material.
    a. HEAT FLOW
    b. HEAT OF COMPRESSION
    c. HEAT OF THE LIQUID
    d. HEAT TRANSFER
7. One _____ is equivalent to 1,000 BTU's per hour.
    a. BTU
    b. COP
    c. MBH
    d. MICRON
8. A device which meters equal quantities of refrigerant to independent circuits in the evaporator coil.
    a. REFRIGERANT DISTRIBUTOR
    b. REFRIGERANT MIGRATION
    c. REFRIGERANT OPERATING CHARGE
    d. REFRIGERANT VELOCITY
9. The substance, usually air or water, to which the heat in a condenser is transferred.
    a. CONDENSING UNIT
    b. CONDENSING MEDIUM
    c. COMPRESSION RATIO
    d. CONDENSATION POINT

10. The amount of heat necessary to change the temperature of one pound of a substance 1^0 F.
    a. VACUUM
    b. SPECIFIC HEAT
    c. SPECIFIC VOLUME
    d. VAPOR PRESSURE
11. That length of straight tubing which has the same pressure drop as the fitting, valve or accessory (of the same nominal size) being considered.
    a. EQUIVALENT LENGTH
    b. EVAPORATIVE COOLING
    c. EVAPORATOR
    d. EVAPORATOR SUPERHEAT
12. The heat added to a vapor by the work done on it during compression.
    a. HEAT FLOW
    b. HEAT OF COMPRESSION
    c. HEAT OF THE LIQUID
    d. HEAT TRANSFER
13. The transfer of heat from a place where it is not wanted to a place where its presence is not desirable.
    a. REFRIGERANT DISTRIBUTOR
    b. REFRIGERATION
    c. REFRIGERANT OPERATING CHARGE
    d. REFRIGERANT VELOCITY
14. The sum of all partial pressures in a mixture of gases.
    a. BRITISH THERMAL UNIT
    b. TOTAL HEAT
    c. TOTAL PRESSURE
    d. SUPERHEAT
15. A form of energy causing the agitation of molecules within a substance.
    a. HEAT
    b. HEAT OF COMPRESSION
    c. HEAT OF THE LIQUID
    d. HEAT TRANSFER
16. The amount of heat energy, in BTU'S, that must be removed to change the state of one pound of solid to one pound of vapor at the same temperature.
    a. LATENT HEAT OF CONDENSATION
    b. LATENT HEAT OF FUSION
    c. LATENT HEAT OF MELTING
    d. LATENT HEAT OF VAPORIZATION
17. A resistance heater (usually not adjustable) in parallel with the cooling circuit. It is 'on' when the current is 'off", adding heat to shorten the off cycle.
    a. COOLING ANTICIPATOR
    b. AIR CONDITIONING
    c. EVAPORATIVE COOLING
    d. REFRIGERANT
18. The transfer of heat by a moving fluid.
    a. COMPRESSION
    b. CONDUCTION
    c. CONVECTION
    d. HEAT FLOW

19. The change effected in temperature when pressure is changed or vice versa. Only used at saturated conditions. An increase in pressure results in a temperature increase. A decrease in temperature results in a pressure decrease.
    a. VELOCITY PRESSURE
    b. PRESSURE DROP
    c. VAPOR PRESSURE
    d. PRESSURE - TEMPERATURE RELATIONSHIP
20. Cooling of a liquid, at a constant pressure, below the point at which it was condensed.
    a. FREEZING POINT
    b. STATE CONDITION
    c. SUB COOLING
    d. TON OF REFRIGERATION
21. A measurement of heat intensity.
    a. TEMPERATURE
    b. FAHRENHEIT
    c. WET BULB TEMPERATURE
    d. EFFECTIVE TEMPERATURE
22. The movement of refrigerant through the system to the compressor crankcase during the off-cycle, caused by its attraction to oil.
    a. REFRIGERANT DISTRIBUTOR
    b. REFRIGERANT MIGRATION
    c. REFRIGERANT OPERATING CHARGE
    d. REFRIGERANT VELOCITY
23. A valve designed to permit flow in one direction only.
    a. CHECK VALVE
    b. CAPILLARY TUBE
    c. CONTACTOR
    d. COMPRESSOR
24. The normal force per unit area at a small hole in the wall of a duct.
    a. STATIC TAP
    b. STATIC PRESSURE
    c. SATURATION
    d. PRESSURE DROP
25. A vertical tube or pipe which carries refrigerant in any form from a lower to a higher level.
    a. RISER
    b. TRAP
    c. PITCH
    d. LIFT
26. The amount of heat energy, in BTU's required to change the state of one pound of a liquid to one pound of solid at the same temperature.
    a. LATENT HEAT OF CONDENSATION
    b. LATENT HEAT OF FUSION
    c. LATENT HEAT OF MELTING
    d. LATENT HEAT OF VAPORIZATION
27. A device used to meter the amount of refrigerant to an evaporator. It also serves as a dividing point between the high and low pressure sides of the system.
    a. REFRIGERANT CONTROL
    b. REFRIGERANT OPERATING CHARGE
    c. REFRIGERATION
    d. REFRIGERANT MIGRATION

28. Refrigerant line's which are filled with refrigerant and are sealed at both ends. The seals are broken when the lines are installed and the line charge becomes part of the total system charge.
    a. PRESSURE DROP
    b. PRECHARGED LINES
    c. WATER MANOMETER
    d. VACUUM
29. An electromagnetic actuated relay. Usually used to refer to the relay which closes the circuit to a compressor.
    a. CHECK VALVE
    b. CAPILLARY TUBE
    c. CONTACTOR
    d. COMPRESSOR
30. Atmospheric pressure is equal to 29.92 inches of mercury.
    a. LATENT HEAT OF MELTING
    b. WATER MANOMETER
    c. WET BULB TEMPERATURE
    d. INCHES OF MERCURY
31. The sum of sensible and latent heat.
    a. BRITISH THERMAL UNIT
    b. TOTAL HEAT
    c. TOTAL PRESSURE
    d. SUPERHEAT
32. The amount of heat energy in BTU's required to change the state of one pound of a liquid to one pound of vapor at the same temperature.
    a. LATENT HEAT OF CONDENSATION
    b. LATENT HEAT OF FUSION
    c. LATENT HEAT OF MELTING
    d. LATENT HEAT OF VAPORIZATION
33. Heat that can be measured or felt. Sensible heat always causes a temperature rise.
    a. HEAT FLOW
    b. HEAT TRANSFER
    c. SENSIBLE HEAT
    d. HEAT
34. A tube filled with a liquid used to measure pressures.
    a. LATENT HEAT OF MELTING
    b. MANOMETER
    c. WET BULB TEMPERATURE
    d. INCHES OF MERCURY
35. Ratio of work performed or accomplished as compared to the energy used.
    a. BTU
    b. COP
    c. MBH
    d. MICRON
36. The temperature at which the addition of any heat will begin a change of state from a solid to a liquid.
    a. MELTING POINT
    b. BOILING POINT
    c. VAPOR PRESSURE
    d. RADIATION

37. A common means of assigning quantitative values to volumes of air in transit, usually abbreviated CFM.
    a. CUBIC FEET PER MINUTE
    b. STATIC PRESSURE
    c. THERMISTOR
    d. WATER MANOMETER
38. Heat that produces a change of state without a change in temperature; i.e., ice to water at 32 ^{o}F or water to steam at 212 ^{o}F.
    a. FAHRENHEIT
    b. BRITISH THERMAL UNIT
    c. CENTIGRADE
    d. LATENT HEAT
39. The temperature at which the removal of any heat will begin a change of state from a vapor to a liquid.
    a. CONDENSING UNIT -
    b. CONDENSING MEDIUM
    c. COMPRESSION RATIO
    d. CONDENSATION POINT
40. Substances can exist in three states - solid, liquid or vapor.
    a. FREEZING POINT
    b. STATE CONDITION
    c. SUB COOLING
    d. TON OF REFRIGERATION
41. The temperature at which the addition of any heat will begin a change of state from a liquid to a vapor.
    a. MELTING POINT
    b. BOILING POINT
    c. VAPOR PRESSURE
    d. RADIATION
42. Pressure measured with the base of zero.
    a. ABSOLUTE HUMIDITY
    b. ABSOLUTE PRESSURE
    c. ABSOLUTE TEMPERATURE
    d. ABSOLUTE ZERO
43. The reduction of volume of a vapor or gas by mechanical means.
    a. COMPRESSION
    b. CONVECTION
    c. CYCLE
    d. FLASH GAS
44. The transfer of heat from molecule to molecule within a substance.
    a. EVAPORATIVE COOLING
    b. HEAT OF THE LIQUID
    c. RELATIVE HUMIDITY
    d. CONDUCTION
45. The total amount of refrigerant required by a a system for correct operation.
    a. REFRIGERANT DISTRIBUTOR
    b. REFRIGERANT MIGRATION
    c. REFRIGERANT OPERATING CHARGE
    d. REFRIGERANT VELOCITY

46. A tube used to convey the compressed refrigerant vapor from the compressor to the condenser inlet.
    a. DISCHARGE PRESSURE
    b. PRESSURE DROP
    c. PUMPDOWN
    d. DISCHARGE LINE
47. The mean of difference between the temperature of a fluid receiving and a fluid yielding heat.
    a. PSYCHROMETER
    b. CAPILLARY TUBE
    c. TEMPERATURE
    d. MEAN TEMPERATURE DIFFERENCES
48. Used to measure vacuum in inches of mercury.
    a. INCHES OF MERCURY
    b. LIQUID LINE
    c. MERCURY MANOMETER
    d. WATER MANOMETER
49. Conditions at which capacity ratings for air conditioning equipment is rated.
    a. MEAN TEMPERATURE DIFFERENCES
    b. AMBIENT
    c. AIR
    d. TEMPERATURE
50. A condition in which a quantity of liquid enters the compressor causing hammering and possible compressor damage.
    a. STATIC PRESSURE
    b. EXTERNAL STATIC PRESSURE
    c. MUFFLER
    d. SLUGGING
51. The amount of heat energy, in BTU'S, that must be removed to change the state of one pound of solid to one pound of vapor at the same temperature.
    a. LATENT HEAT OF CONDENSATION
    b. LATENT HEAT OF FUSION
    c. LATENT HEAT OF MELTING
    d. LATENT HEAT OF VAPORIZATION
52. The slope of a pipe line for the purpose of improving drainage.
    a. RISER
    b. TRAP
    c. PITCH
    d. LIFT
53. The rate at which refrigerant is moving at a given point in a system, usually given in feet per minute (FPM).
    a. REFRIGERANT DISTRIBUTOR
    b. REFRIGERANT MIGRATION
    c. REFRIGERANT OPERATING CHARGE
    d. REFRIGERANT VELOCITY
54. Heat added to a vapor after all liquid has been vaporized.
    a. BRITISH THERMAL UNIT
    b. TOTAL HEAT
    c. TOTAL PRESSURE
    d. SUPERHEAT

55. The amount of heat necessary to completely melt one ton of 32°F ice in 24 hours.
    a. FREEZING POINT
    b. STATE CONDITION
    c. SUB COOLING
    d. TON OF REFRIGERATION
56. The cooling effect of vaporization of a liquid in a moving air stream.
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    b. EVAPORATIVE COOLING
    c. EVAPORATOR
    d. EVAPORATOR SUPERHEAT
57. The pressure exerted by vapor.
    a. VELOCITY PRESSURE
    b. GAUGE PRESSURE
    c. VAPOR PRESSURE
    d. VACUUM
58. The transfer of heat without an intervening medium. It is absorbed on contact with a solid surface.
    a. MELTING POINT
    b. BOILING POINT
    c. VAPOR PRESSURE
    d. RADIATION
59. The portion of a refrigeration system where the compression and condensation of refrigerant is accomplished. Sometimes referred to as the 'high side'.
    a. CONDENSING UNIT
    b. CONDENSING MEDIUM
    c. COMPRESSION RATIO
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60. The percentage of water vapor present in a given quantity air compared to the amount it can hold at its temperature.
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    b. HEAT OF THE LIQUID
    c. RELATIVE HUMIDITY
    d. CONDUCTION
61. A temperature scale expressed in degrees °F
    a. ABSOLUTE HUMIDITY
    b. ABSOLUTE PRESSURE
    c. ABSOLUTE TEMPERATURE
    d. ABSOLUTE ZERO
62. The pressure read at the compressor outlet. Also called head pressure or high side pressure.
    a. DISCHARGE PRESSURE
    b. PRESSURE DROP
    c. PUMPDOWN
    d. DISCHARGE LINE
63. A device for separating out oil entrained in the discharge gas from the compressor and returning it to the crankcase.
    a. VAPOR BARRIER
    b. HEAT EXCHANGER
    c. FILTER-DRIER
    d. OIL SEPARATOR

64. A mechanical device used to compress gases. Three main types - reciprocating, centrifugal and rotary.
    a. CHECK VALVE
    b. CAPILLARY TUBE
    c. CONTACTOR
    d. COMPRESSOR
65. Heat flows from a warmer to a cooler substance. The rate depends upon the temperature difference, the area exposed and the type of material.
    a. COMPRESSION
    b. CONDUCTION
    c. CONVECTION
    d. HEAT FLOW
66. An arbitrary concept which combines into a single value the effect of temperature, humidity, and air movement as sensed by the human body.
    a. TEMPERATURE
    b. FAHRENHEIT
    c. WET BULB TEMPERATURE
    d. EFFECTIVE TEMPERATURE
67. A depression or dip in refrigerant piping in which oil will collect. A trap may be placed at the base of a suction or hot gas riser to improve oil return up the riser.
    a. VACUUM
    b. TRAP
    c. RISER
    d. PITCH
68. The weight of water vapor in a given amount of air.
    a. ABSOLUTE HUMIDITY
    b. ABSOLUTE PRESSURE
    c. ABSOLUTE TEMPERATURE
    d. ABSOLUTE ZERO
69. The amount of heat necessary to change the temperature of 1 pound of pure water 1 degree Fahrenheit (^{o}F).
    a. BRITISH THERMAL UNIT
    b. TOTAL HEAT
    c. TOTAL PRESSURE
    d. SUPERHEAT
70. A device in which a liquid refrigerant is vaporized. Some superheating usually takes place.
    a. EQUIVALENT LENGTH
    b. EVAPORATIVE COOLING
    c. EVAPORATOR
    d. EVAPORATOR SUPERHEAT
71. The temperature at which molecular activity theoretically ceases. -456.69 F^{0} or -273.16 ^{o}C.
    a. ABSOLUTE HUMIDITY
    b. ABSOLUTE PRESSURE
    c. ABSOLUTE TEMPERATURE
    d. ABSOLUTE ZERO
72. Refers to the temperature surrounding a body or unit under test.
    a. MEAN TEMPERATURE DIFFERENCES
    b. AMBIENT
    c. AIR
    d. TEMPERATURE

73. The actual temperature of the refrigerant vapor at the evaporator exit as compared to the saturated vapor temperature indicated by the suction pressure.
    a. EQUIVALENT LENGTH
    b. EVAPORATIVE COOLING
    c. EVAPORATOR
    d. EVAPORATOR SUPERHEAT
74. Conditions at which capacity ratings for air conditioning equipment is rated.
    a. MEAN TEMPERATURE DIFFERENCES
    b. AMBIENT
    c. AIR
    d. TEMPERATURE
75. Two metals with different rates of expansion fastened together. When heated or cooled they will warp and can be made to open or close a switch or valve.
    a. CONTACTOR
    b. BIMETAL
    c. COP
    d. MBH
76. Device installed in hot gas line to silence discharge surges.
    a. STATIC PRESSURE
    b. EXTERNAL STATIC PRESSURE
    c. MUFFLER
    d. SLUGGING
77. Air which contains no moisture vapor.
    a. MEAN TEMPERATURE DIFFERENCES
    b. AMBIENT
    c. AIR
    d. DRY AIR
78. To elevate a fluid from one level to a higher level.
    a. RISER
    b. TRAP
    c. PITCH
    d. LIFT
79. A substance which produces a refrigerating effect while expanding or vaporizing.
    a. COOLING ANTICIPATOR
    b. AIR CONDITIONING
    c. EVAPORATIVE COOLING
    d. REFRIGERANT
80. A temperature scale with the freezing point of water 0 ^{o}C and the boiling point 100 ^{o}C at sea level.
    a. FAHRENHEIT
    b. BRITISH THERMAL UNIT
    c. CENTIGRADE
    d. LATENT HEAT
81. The amount of heat energy in BTU's that must be removed to change the state of one pound of a vapor to one pound of liquid at the same temperature.
    a. LATENT HEAT OF CONDENSATION
    b. LATENT HEAT OF FUSION
    c. LATENT HEAT OF MELTING
    d. LATENT HEAT OF VAPORIZATION

82. A tube used to convey the liquid refrigerant from the condenser outlet to the refrigerant control device of the evaporator.
    a. INCHES OF MERCURY
    b. LIQUID LINE
    c. MERCURY MANOMETER
    d. WATER MANOMETER
83. A device for the transfer of heat energy from the source to the conveying medium.
    a. VAPOR BARRIER
    b. HEAT EXCHANGER
    c. FILTER-DRIER
    d. OIL SEPARATOR
84. A unit used to measure high vacuums. One _____ equals 1/25,400 of one inch mercury.
    a. BTU
    b. COP
    c. MBH
    d. MICRON
85. The sum of the static and velocity pressures of a moving air system at the point of measurement.
    a. STATIC PRESSURE
    b. EXTERNAL STATIC PRESSURE
    c. MUFFLER
    d. SLUGGING
86. The process of controlling the temperature, humidity, cleanliness and distribution of the air.
    a. COOLING ANTICIPATOR
    b. AIR CONDITIONING
    c. EVAPORATIVE COOLING
    d. REFRIGERANT
87. The weight of a 1 unit column of the earth's atmosphere.
    a. ATMOSPHERIC PRESSURE
    b. COP
    c. MBH
    d. MICRON
88. A refrigerant control consisting of a small diameter tube which controls flow by restriction. They are carefully sized by inside diameter.
    a. CHECK VALVE
    b. CAPILLARY TUBE
    c. CONTACTOR
    d. COMPRESSOR
89. A chart on which can be found the properties of air under varying conditions of temperature, water vapor content, volume, etc. A chart on which can be found the properties of air under varying conditions of temperature, water vapor content, volume, etc.
    a. VELOCITY PRESSURE
    b. PSYCHROMETRIC CHART
    c. VAPOR PRESSURE
    d. PSYCHROMETER
90. The ratio determined by dividing the discharge pressure, in PSI (Pa), by the suction pressure in PSI (Pa).
    a. CONDENSING UNIT
    b. CONDENSING MEDIUM
    c. COMPRESSION RATIO
    d. CONDENSATION POINT

91. The complete course of operation of a refrigerant back to a selected starting point in a system.
    a. CYCLE
    b. CHECK VALVE
    c. CONTACTOR
    d. PRESSURE DROP
92. The term applied to an impervious layer of material superimposed upon a layer of insulation. Vapor barriers are always applied on the warm side of the insulation layer.
    a. VAPOR BARRIER
    b. HEAT EXCHANGER
    c. FILTER-DRIER
    d. OIL SEPARATOR
93. The three methods of heat transfer are conduction, convection and radiation.
    a. HEAT FLOW
    b. HEAT OF COMPRESSION
    c. HEAT OF THE LIQUID
    d. HEAT TRANSFER
94. Mass or weight per unit of volume.
    a. DENSITY
    b. COP
    c. MBH
    d. MICRON
95. A device comprising a small diameter orifice projecting directly into an air stream measuring total pressure and surrounded by an annular section with small diameter entrances normal to the flow, measuring static pressure; both sections are usually connected to a manometer to indicate velocity pressure.
    a. PITOT TUBE
    b. CHECK VALVE
    c. CONTACTOR
    d. QUICK CONNECT
96. Temperature read with an ordinary thermometer.
    a. AMBIENT
    b. THERMISTOR
    c. TEMPERATURE
    d. DRY BULB TEMPERATURE
97. Total amount of heat in one pound (kg) of a substance calculated from accepted temperature base, expressed in BTU's per pound mass.
    a. ENTHALPY
    b. EQUIVALENT LENGTH
    c. EVAPORATIVE COOLING
    d. EVAPORATOR
    e. EVAPORATOR SUPERHEAT
98. Any pressure below atmospheric pressure.
    a. VELOCITY PRESSURE
    b. GAUGE PRESSURE
    c. VAPOR PRESSURE
    d. VACUUM
99. The normal force per unit area at a small hole in the wall of a duct.
    a. STATIC PRESSURE
    b. EXTERNAL STATIC PRESSURE
    c. MUFFLER

d. SLUGGING

100. The pressure exerted by any individual gas in a mixture.
   a. PARTIAL PRESSURE
   b. CHECK VALVE
   c. CONTACTOR
   d. QUICK CONNECT

101. A term assigned to a velocity of a moving air stream, usually express FPM.
   a. BTU
   b. FPM
   c. MBH
   d. CFM

102. The volume of a substance per unit of mass; i.e., standard air 13.33 cubic feet per pound. The reciprocal of density.
   a. VELOCITY PRESSURE
   b. SPECIFIC VOLUME
   c. VAPOR PRESSURE
   d. STANDARD AIR DENSITY

103. A device that removes moisture, acid and foreign matter from the refrigerant.
   a. VAPOR BARRIER
   b. HEAT EXCHANGER
   c. FILTER-DRIER
   d. OIL SEPARATOR

104. The temperature at which the removal of any heat will begin a change of state from a liquid to a solid.
   a. FREEZING POINT
   b. STATE CONDITION
   c. SUB COOLING
   d. TON OF REFRIGERATION

105. Instantaneous evaporation of some liquid refrigerant at the metering device due to pressure drop which cools the remaining liquid refrigerant to desired evaporation temperature.
   a. FREEZING POINT
   b. FLASH GAS
   c. ENTHALPY
   d. CONVECTION

106. A vessel for holding refrigerant liquefied by the condenser.
   a. RECEIVER
   b. CHECK VALVE
   c. CONTACTOR
   d. QUICK CONNECT

107. Pressure measured with atmospheric pressure as a base.
   a. VELOCITY PRESSURE
   b. GAUGE PRESSURE
   c. VAPOR PRESSURE
   d. VACUUM

108. The increase in total heat (Enthalpy) per pound of a saturated liquid as its temperature is increased above a chosen base temperature. (Usually - 40^0F for refrigerants).
   a. HEAT FLOW
   b. HEAT OF COMPRESSION
   c. HEAT OF THE LIQUID
   d. HEAT TRANSFER

109. The decrease in pressure due to friction of a fluid or vapor as it passes through a tube or duct or/and lift.
    a. VELOCITY PRESSURE
    b. PRESSURE DROP
    c. VAPOR PRESSURE
    d. VACUUM
110. A device having both a dry and wet bulb thermometer. It is used to determine the relative humidity in a conditioned space. Most have an indexed scale to allow direct conversion from the temperature readings to the percentage of relative humidity.
    a. VELOCITY PRESSURE
    b. PSYCHROMETRIC CHART
    c. VAPOR PRESSURE
    d. PSYCHROMETER
111. Name given to the end connections on pre-charged lines which screw on to mated fittings of the outdoor and indoor sections. Tightening the quick connections ruptures the seals on the fittings and the line charge becomes part of the total system charge.
    a. CYCLE
    b. CHECK VALVE
    c. CONTACTOR
    d. QUICK CONNECT
112. Vapor in contact with a liquid.
    a. VELOCITY PRESSURE
    b. GAUGE PRESSURE
    c. VAPOR PRESSURE
    d. SATURATED VAPOR
113. A device in a heat pump that is electrically controlled to reverse the flow of refrigerant as the system is switched from cooling to heating; also called a four-way valve.
    a. CHECK VALVE
    b. CAPILLARY TUBE
    c. CONTACTOR
    d. REVERSING VALVE
114. A glass installed in the liquid line permitting visual inspection of the liquid refrigerant for the purpose of detecting vapor in the liquid. They also generally have a device included to monitor moisture content of the refrigerant.
    a. PITOT TUBE
    b. SIGHT GLASS
    c. CONTACTOR
    d. QUICK CONNECT
115. .075 pounds per cubic foot. Equivalent to dry air at 70^0 F and at sea level pressure.
    a. VELOCITY PRESSURE
    b. PRESSURE DROP
    c. VAPOR PRESSURE
    d. STANDARD AIR DENSITY
116. A means by which static pressures of a duct system may be read directly, usually consisting of a small diameter hole in the side of the duct connected to a manometer.
    a. RISER
    b. TRAP
    c. STATIC TAP
    d. LIFT

117. A tube used to convey the refrigerant vapor from the evaporator outlet to the suction inlet of compressor.
    a. PITOT TUBE
    b. SUCTION LINE
    c. CONTACTOR
    d. QUICK CONNECT
118. Basically a semiconductor which has electrical resistance that varies inversely with temperature.
    a. THERMISTOR
    b. THERMOSTAT
    c. THERMOSTATIC EXPANSION VALVE
    d. WET BULB TEMPERATURE
119. A bimetal actuated switch to close and open a circuit to indicate or terminate operation of a heating or air conditioning system.
    a. THERMISTOR
    b. THERMOSTAT
    c. THERMOSTATIC EXPANSION VALVE
    d. WET BULB TEMPERATURE
120. Refrigerant control which monitors the flow rate according to the superheat at the evaporator outlet.
    a. THERMISTOR
    b. THERMOSTAT
    c. THERMOSTATIC EXPANSION VALVE
    d. WET BULB TEMPERATURE

hvacdef120 Quiz-Answer Sheet

1	a	b	c	d		41	a	b	c	d	e		81	a	b	c	d										
2	a	b	c	d		42	a	b	c	d	e		82	a	b	c	d										
3	a	b	c	d		43	a	b	c	d	e		83	a	b	c	d										
4	a	b	c	d		44	a	b	c	d	e		84	a	b	c	d										
5	a	b	c	d		45	a	b	c	d			85	a	b	c	d										
6	a	b	c	d		46	a	b	c	d			86	a	b	c	d										
7	a	b	c	d		47	a	b	c	d			87	a	b	c	d										
8	a	b	c	d		48	a	b	c	d			88	a	b	c	d										
9	a	b	c	d		49	a	b	c	d			89	a	b	c	d										
10	a	b	c	d		50	a	b	c	d			90	a	b	c	d										
11	a	b	c	d		51	a	b	c	d			91	a	b	c	d										
12	a	b	c	d		52	a	b	c	d			92	a	b	c	d										
13	a	b	c	d		53	a	b	c	d			93	a	b	c	d										
14	a	b	c	d		54	a	b	c	d			94	a	b	c	d										
15	a	b	c	d		55	a	b	c	d			95	a	b	c	d										
16	a	b	c	d		56	a	b	c	d			96	a	b	c	d										
17	a	b	c	d		57	a	b	c	d			97	a	b	c	d	e									
18	a	b	c	d		58	a	b	c	d			98	a	b	c	d										
19	a	b	c	d		59	a	b	c	d			99	a	b	c	d										
20	a	b	c	d		60	a	b	c	d			100	a	b	c	d										
21	a	b	c	d		61	a	b	c	d			101	a	b	c	d										
22	a	b	c	d		62	a	b	c	d			102	a	b	c	d										
23	a	b	c	d		63	a	b	c	d			103	a	b	c	d										
24	a	b	c	d		64	a	b	c	d			104	a	b	c	d										
25	a	b	c	d		65	a	b	c	d			105	a	b	c	d										
26	a	b	c	d		66	a	b	c	d			106	a	b	c	d										
27	a	b	c	d		67	a	b	c	d			107	a	b	c	d										
28	a	b	c	d		68	a	b	c	d			108	a	b	c	d										
29	a	b	c	d		69	a	b	c	d			109	a	b	c	d										
30	a	b	c	d		70	a	b	c	d			110	a	b	c	d										
31	a	b	c	d		71	a	b	c	d			111	a	b	c	d										
32	a	b	c	d		72	a	b	c	d			112	a	b	c	d										
33	a	b	c	d		73	a	b	c	d			113	a	b	c	d										
34	a	b	c	d		74	a	b	c	d			114	a	b	c	d										
35	a	b	c	d		75	a	b	c	d			115	a	b	c	d										
36	a	b	c	d		76	a	b	c	d			116	a	b	c	d										
37	a	b	c	d		77	a	b	c	d			117	a	b	c	d										
38	a	b	c	d		78	a	b	c	d			118	a	b	c	d										
39	a	b	c	d		79	a	b	c	d			119	a	b	c	d										
40	a	b	c	d	e	80	a	b	c	d			120	a	b	c	d										

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