TYPE II QUESTIONS

~~LEVEL 2~~

GROUP: REFRIGERATION

1. A compound pressure gauge for the low side of the system measures pressure in: Level: 2

A: psia
B: torrs and microns
C: psig and inches of mercury
D: psia and microns

GROUP: REFRIGERATION

1. A deep vacuum is measured in: Level: 2

A: psig
B: psia
C: inches of mercury
D: microns

GROUP: REFRIGERATION

1. A moisture-indicating sight glass is useful for: Level: 2

A: checking the system's charge
B: checking the refrigerant's water content
C: providing subcooling
D: enhancing compressor efficiency

GROUP: SAFETY

1. A reciprocating compressor should not be energized when: Level: 2

A: the discharge service valve is closed
B: the suction service valve is open
C: the discharge service valve is open
D: there is a demand for cooling

GROUP: LEAK DETECTION

1. After installation of a field-piped split system the unit should first be: Level: 2

A: evacuated
B: pressurized with R-22/leak checked
C: pressurized with R-12/leak checked
D: pressurized with nitrogen/leak checked

GROUP: RECOVERY

1. An operating unit that has a receiver/storage tank requires refrigerant system service. When servicing the unit: Level: 2

A: the compressor should be valved off
B: liquid should be recovered last
C: refrigerant should be recovered in the receiver
D: achieve a gauge pressure by venting

GROUP: REFRIGERATION

1. Backseating a suction shutoff valve will close the: Level: 2

A: suction line and compressor port
B: compressor and gauge port
C: compressor port
D: gauge port

GROUP: REFRIGERATION

1. Cooling occurs in a direct-expansion vapor-compression refrigeration system when: Level: 2

A: refrigerant vapor turns to a liquid
B: the refrigerant is under maximum pressure
C: refrigerant liquid turns to a vapor
D: the refrigerant gives off heat

GROUP: REFRIGERATION

1. During service, quick couplers, self-sealing hoses or hand valves should be used: Level: 2

A: to minimize the chance of explosion during the reclamation of mixed refrigerants
B: to simplify evacuation during recycling
C: to minimize refrigerant release when hoses are connected and disconnected
D: to prevent vapor lock during liquid transfer

GROUP: LEAK DETECTION

1. For safety purposes, which of the following must NEVER be used to pressurize a system for leak checking? Level: 2

A: HCFC refrigerant
B: HFC refrigerant
C: R-22 and air
D: R-22 and nitrogen

GROUP: REFRIGERATION

1. If a system is opened for servicing, _____ should be replaced? Level: 2

A: filter drier
B: thermostat
C: metering device
D: crankcase heater

GROUP: RECOVERY

1. In a unit, in order to recover liquid, you must connect one hose to the: Level: 2

A: suction valve of the compressor
B: discharge valve of the compressor
C: liquid line
D: top of the condenser

GROUP: RECOVERY

1. Initial recovery of refrigerant from a charged refrigerant syste should begin with: Level: 2

A: liquid recovery
B: vapor recovery
C: ambient air
D: oxygen

GROUP: REFRIGERATION

2. Many refrigeration units use an open compressor. Which part of the compressor is most likely to leak if a unit is not used for several months? Level: 2

A: suction service valve
B: rotating shaft seal
C: oil drain plug
D: a good tight unit should never leak

GROUP: SAFETY

1. Nitrogen should be used to break the first vacuum when dehydrating by the double evacuation method. However, it: Level: 2

A: often contains moisture
B: is expensive
C: is toxic
D: is dangerous if not used with a pressure regulator

GROUP: REFRIGERATION

1. Non-condensibles in a refrigeration system result in: Level: 2

A: lower suction pressure
B: higher suction pressure
C: lower discharge pressure
D: higher discharge pressure

GROUP: REFRIGERATION

1. Oil foaming usually occurs in what area of a refrigeration system? Level: 2

A: condenser
B: evaporator
C: compressor
D: expansion device

GROUP: RECOVERY

1. On systems having a water chiller and/or water-cooled condenser, what should be done during recovery? Level: 2

A: drain circuits completely
B: circulate water during recovery
C: A or B
D: distill the water

GROUP: RECOVERY

1. Recovered refrigerant may contain which of the following? Level: 2

A: acids
B: moisture
C: oils
D: all of the above

GROUP: RECOVERY

1. Recovering refrigerant from a system in vapor phase will minimize loss of: Level: 2

A: water
B: oil
C: refrigerant
D: all of the above

GROUP: REFRIGERATION

1. Refrigerant cannot be recovered without isolating a parallel compressor system because of: Level: 2

A: the service valve connection
B: the electrical connections
C: an open equalization connection
D: the thermal bleed connection

GROUP: REFRIGERATION

1. Refrigerant entering the compressor of a refrigeration system is a Level: 2

A: liquid
B: sub-cooled liquid
C: sub-cooled vapor
D: superheated vapor

GROUP: REFRIGERATION

1. Refrigerant entering the metering device of a refrigeration system is in the: Level: 2

A: liquid state
B: gaseous state
C: superheated gas condition
D: vapor state

GROUP: RECOVERY

1. Refrigerant has been recovered from an air conditioning system and held in a refillable cylinder, in order to replace the condenser coil. The refrigerant: Level: 2

A: can probably be charged back into the system
B: should probably be replaced with R-123
C: must be reclaimed or destroyed
D: must be destroyed

GROUP: RECOVERY

1. Refrigerant should be removed from the condenser outlet when: Level: 2

A: the condenser is below the receiver
B: the condenser is on the roof
C: the compressor is inoperative
D: the evaporator has a small leak

GROUP: REFRIGERATION

1. Refrigerant will migrate to a compressor's crankcase because of difference in _____ between the oil and refrigerant? Level: 2

A: vapor pressure
B: acidity
C: volume
D: density

GROUP: RECOVERY

1. Removal of the refrigerant charge from a system can be conducted more quickly by: Level: 2

A: energizing the compressor heater
B: packing the recovery vessel in ice
C: using a vacuum pump
D: heating the recovery vessel

GROUP: LEAK DETECTION

1. Testing with soap bubbles is used: Level: 2

A: to pinpoint system leaks
B: in explosive atmospheres
C: to detect water leaks
D: to determine if refrigerant leaks have occurred

GROUP: REFRIGERATION

1. The center port on a three port manifold is used for: Level: 2

A: obtaining gauge readings
B: pumping air into system
C: by-pass from low to high side
D: recovery, evacuation and charging

GROUP: REFRIGERATION

1. The component directly following the condenser of a refrigeration system utilizing a thermal expansion valve is the: Level: 2

A: receiver
B: metering device
C: accumulator
D: evaporator

GROUP: REFRIGERATION

1. The component directly following the evaporator of a heat pump system is the: Level: 2

A: receiver
B: metering device
C: accumulator
D: condenser

GROUP: REFRIGERATION

1. The component of a refrigeration system which changes a high pressure vapor to a high pressure liquid is the: Level: 2

A: receiver
B: metering device
C: accumulator
D: condenser

GROUP: REFRIGERATION

1. The component which changes a low pressure vapor to a high pressure vapor is: Level: 2

A: evaporator
B: condenser
C: cap tube
D: compressor

GROUP: SAFETY

1. The evaporation temperature of R-134a at 14.7 psia is: Level: 2

A: -21 degrees F
B: -15 degrees F
C: -5 degrees F
D: -1 degree F

GROUP: LEAK DETECTION

1. The preferred method of leak detection for air conditioning systems using copper tubing requires the use of: Level: 2

A: a halide torch
B: soap bubbles
C: an electronic leak detector
D: a static drop test

GROUP: REFRIGERATION

1. The refrigerant pressure of an R-12 machine at room temperature (72 degrees F) while the machine is idle is: Level: 2

A: approximately 74 psig
B: approximately 150 psig
C: approximately 212 psig
D: approximately 300 psig

GROUP: REFRIGERATION

1. The state of the refrigerant entering the compressor of a refrigeration system is: Level: 2

A: low pressure liquid
B: low pressure vapor
C: high pressure liquid
D: high pressure vapor

GROUP: REFRIGERATION

1. The state of the refrigerant leaving the receiver of a refrigeration system is: Level: 2

A: low pressure liquid
B: low pressure vapor
C: high pressure liquid
D: high pressure vapor

GROUP: RECOVERY

1. What is the fastest and most efficient method of refrigerant recovery? Level: 2

A: as a liquid, then as a vapor
B: by the chilled recovery cylinder method
C: by the vapor evaporation and re-condensing method
D: by transferring both liquid and vapor simultaneously

GROUP: RECOVERY

1. What should be done before transferring refrigerant to an empty cylinder? Level: 2

A: the refrigerant should be chilled
B: the refrigerant should be mixed
C: the cylinder should be heated
D: the cylinder should be evacuated

GROUP: REFRIGERATION

1. When a blend of refrigerant has a range of boiling points or condensing points throughout the evaporator and condenser respectively, the term used to describe this is: Level: 2

A: pressure slump
B: mixture glide
C: fractionation
D: temperature glide

GROUP: LEAK DETECTION

1. When a new system has been assembled (built up), and is ready for testing, the first thing to do is: Level: 2

A: pull a vacuum
B: pressurize with an inert gas and leak check
C: pressurize with the refrigerant to be used in the system
D: introduce an initial charge of refrigerant and start the compressor

GROUP: LEAK DETECTION

1. When a refrigerant trace gas becomes absolutely necessary, which of the available refrigerants should be used to identify a leak? Level: 2

A: CFC-11
B: HCFC-123
C: HCFC-22
D: CFC-114

GROUP: REFRIGERATION

1. When evacuating a system, the use of a large vacuum pump could: Level: 2

A: cause trapped oil to freeze
B: cause trapped refrigerant to freeze
C: cause trapped water to freeze
D: causes the valves to freeze

GROUP: REFRIGERATION

1. When evacuating a vapor compression system, the vacuum pump should be capable of pulling a vacuum of: Level: 2

A: 2 mm Hg
B: 1 mm Hg
C: 500 microns
D: 1000 microns

GROUP: LEAK DETECTION

1. When first inspecting a hermetic system known to be leaking, you should look for: Level: 2

A: frost on the tubing
B: puddles of refrigerant
C: particles of filter-drier core
D: traces of oil - oil residue in pipe

GROUP: RECOVERY

1. When recovering refrigerant from a high pressure system of 20 lbs. refrigerant capacity, the recovery machine manufactured after [DATE] must achieve a vacuum of: Level: 2
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A: 10 psig
B: 20" Hg
C: 10" Hg
D: atmospheric pressure

GROUP: RECOVERY

1. When recovering refrigerant from a package unit, what is the most effective way to recover the refrigerant? Level: 2

A: recover the liquid first, then the vapor
B: recover the liquid only
C: recover the liquid and vent the vapor
D: vent the vapor and recover the liquid

GROUP: RECOVERY

1. When servicing a refrigeration system containing R-12, the refrigerant must be: Level: 2

A: replaced with R-134a
B: recovered
C: vented
D: destroyed

GROUP: REFRIGERATION

1. When under a deep vacuum, a hermetic refrigeration compressor's: Level: 2

A: oil must be kept warm to avoid its breakdown
B: motor insulation improves its dielectric strength
C: crankcase heater should be energized
D: motor winding could be damaged if energized

GROUP: LEAK DETECTION

1. Which of the following is NOT caused by leaks in high pressure systems? Level: 2

A: inaccurate temperature readings
B: loss of refrigerant
C: inefficient equipment operation
D: frosting of evaporators

GROUP: REFRIGERATION

1. Which of the following is NOT part of the low side of the system? Level: 2

A: evaporator
B: receiver
C: suction line
D: accumulator

GROUP: REFRIGERATION

1. Which of the following is a suitable "drop-in" alternative refrigerant for R-12? Level: 2

A: HFC-134a
B: HFC-125
C: both a and b
D: neither a nor b

GROUP: REFRIGERATION

1. Which one of the following service procedures should be used before changing the filter drier? Level: 2

A: recover and recycle the refrigerant, evacuate and recharge
B: pump down the compressor, bring low-side pressures up to 1 or 2 psi
C: run the unit in cool until evaporator pressure is between 0 - 5 psi
D: pump down the low-side to a 10 - 20" vacuum, bring the pressure up to 1 or 2 psi

GROUP: RECOVERY

1. With an air cooled condenser on the roof of a building and the evaporator on the first floor, recovery should first occur: Level: 2

A: from the vapor line entering the condenser
B: from the discharge of the compressor
C: from the liquid line entering the evaporator
D: on the suction side of the compressor

GROUP: REFRIGERATION

1. You are going to service a residental split system, providing comfort air conditioning system. You would expect to find what type of refrigerant? Level: 2

A: R-502
B: R-22
C: R-11
D: R-12

GROUP: RECOVERY

1. You provide the service work for units with R-12, R-502 and R-134a. What special precautions must you take? Level: 2

A: provide a special set of hoses, gauges, vacuum pump, recovery machine and oil containers to be used with R-134a only
B: provide a special set of hoses, gauges, vacuum pump, recovery machine and oil containers to be used with R-502 only
C: provide a special set of hoses, gauges, vacuum pump, recovery machine and oil containers to be used with R-12 and R-134a only
D: there is no need to take any special precautions since there is little difference between these refrigerants

GROUP: RECOVERY

1. Your recovery/recycling machine has R-502 refrigerant in it. You now have to recover refrigerant from a unit with R-22. What must be done before the R-22 refrigerant can be recovered/recycled? Level: 2

A: nothing, as long as the recovery machine is not full
B: change the expansion valve on the recovery machine
C: change the oil, filter and expansion valve on the recovery machine
D: remove the R-502 from the recovery unit, change filter and evacuate