

Practice Exam

As with the Chapter Review Tests and the Final Exam, the Practice Exam tests your understanding of the materials underlying the learning objectives. After you've reviewed your answers to the Chapter Review Tests, try your hand at this 50-question Practice Exam to become still more comfortable with taking a multiple-choice test. Remember, topics covered in this exam may likewise be covered in the Final Exam, but the wording of the questions will never be identical.

1. Which is a **disadvantage** of a packaged indoor unit?
 - a. it typically needs less ductwork
 - b. valuable space that could be leased is not lost
 - c. the potential for excessive noise exists
 - d. it requires a separate coil to cool the building
2. Removing oil and filtering refrigerant for reuse is called:
 - a. recovery.
 - b. recycle.
 - c. reclaim.
 - d. remand.
3. Which is the **best** description of temperature?
 - a. degree of resistance
 - b. intensity of heat
 - c. measurement of pressure
 - d. level of saturation
4. (Fill in the blank) The type of head pressure control in a condenser that helps prevent drops in head pressure is the ___ type.
 - a. fan cycling
 - b. condenser flooding
 - c. damper control
 - d. All of the above.
5. Which refrigeration system accessory is used to remove moisture, acid, and debris?
 - a. suction accumulator
 - b. filter drier
 - c. receiver
 - d. oil separator
6. Nearly all electronic leak detectors use an element that is sensitive to:
 - a. moisture and density.
 - b. light.
 - c. air movement.
 - d. halogenated gases.
7. All of the following are types of synthetic oil **except**:
 - a. esters.
 - b. naphthalenes.
 - c. alkylbenzenes.
 - d. glycols.

8. All of the following are used in cooling towers to spread the water for more efficient cooling **except**:
- fill material.
 - distribution pan.
 - expansion valve.
 - sprays.
9. (Fill in the blank) The one major difference between a low-pressure chiller and a high-pressure chiller is the _____ system.
- defrost
 - purge
 - size of the
 - lubrication
10. Which is **most** likely to cause low to no superheat?
- low charge (too little refrigerant)
 - thermostatic expansion valve overfeeding
 - moisture in the thermostatic expansion valve
 - metering device malfunctioning
11. What does purging do in absorption machines?
- speeds up the system cycle
 - removes water from a system
 - raises condenser water temperature
 - removes noncondensables
12. Which is **false** concerning azeotropic refrigerants?
- they behave as pure compounds
 - they act as one refrigerant in all conditions
 - they are subject to fractionation
 - they are a blend of multiple components
13. Which condenser contains a number of straight tubes through which the cooling water is circulated while the refrigerant vapor surrounds the tube bundle?
- tube within a tube
 - open vertical shell and tube
 - shell and coil
 - horizontal shell and tube

14. Which is a type of cooling tower fill material design that spreads the water evenly to form thin layers?
- film type
 - splash type
 - natural-draft type
 - mechanical type
15. A defrost cycle is required for a(n):
- through the wall unit.
 - air-to-water heat pump.
 - split system.
 - air-to-air heat pump.
16. With regard to cooling towers, which device is necessary for a closed loop system but not for an open loop system?
- fill material
 - distribution pan
 - heat exchanger
 - condenser
17. (Fill in the blank) Transformers have a(n) _____ rating that should never be exceeded.
- AC/DC
 - volt/amp (VA)
 - differential
 - state inspection
18. (Fill in the blanks) A suction accumulator is used to prevent _____ refrigerant from entering the suction side of the _____.
- vapor; evaporator
 - vapor; compressor
 - liquid; evaporator
 - liquid; compressor
19. A plate type evaporator is:
- made up of two flat metal pieces seamed together with liquid refrigerant flowing through a tube between the pieces.
 - no longer environmentally acceptable.
 - essentially a tube coil with exterior aluminum pieces attached to it.
 - not much more than a bent tube.

20. Which **best** describes a liquid bulb charge?
- mostly liquid charge that is different from the refrigerant in the system and remains partially liquid as the refrigerant boils and vaporizes
 - mostly liquid charge that is the same as the refrigerant in the system and remains partially liquid as the refrigerant boils and vaporizes
 - small amount of liquid refrigerant that is different from the refrigerant in the system and boils to a vapor as the temperature rises
 - small amount of liquid refrigerant that is the same as the refrigerant in the system and boils to a vapor as the temperature rises
21. (Fill in the blank) In a split system, the indoor section typically consists of the evaporator, fan(s), _____, and a connection for the suction and liquid lines.
- a compressor
 - a metering device
 - a condenser
 - water connectors
22. (Fill in the blank) A reciprocating compressor increases the pressure of the refrigerant by _____ the volume of the compression chamber.
- increasing
 - lowering
 - increasing, then lowering
 - lowering, then increasing
23. Which is the **best** definition of radiation?
- the transferring of heat from a warm substance to a cooler substance without heating the medium
 - the transferring of heat from one place to another using a fluid that also heats
 - the transferring of heat only within a substance through molecular motion
 - the transferring of heat within a substance or from one substance to another in physical contact
24. (Fill in the blank) The fusible plug type of pressure relief device works by responding to _____.
- high temperature
 - high pressure
 - low temperature
 - low pressure
25. The low-pressure safety cut out stops the refrigeration equipment at a predetermined:
- minimum run time.
 - maximum start-up pressure.
 - maximum run time.
 - minimum operating pressure.

26. Which is the correct order of the three stages a refrigerant goes through while moving through a condenser?
- de-superheating, condensing, subcooling
 - condensing, de-superheating, subcooling
 - condensing, subcooling, de-superheating
 - de-superheating, subcooling, condensing
27. How does a scroll compressor work?
- piston-like motion
 - screw-in motion
 - back-and-forth motion
 - orbiting motion
28. All of the following are advantages of open compressors **except**:
- compressor does not need to be replaced if the motor fails
 - easy to change motors
 - easy to change pumping capacity
 - does not need a shaft seal
29. Which chiller safety is used to provide relief in the event of over-pressurization?
- flow switch
 - high temperature motor winding cut out
 - rupture disc
 - lock out timer
30. What does a screw chiller use to force the oil from the separator back to the compressor during normal operation?
- oil pump
 - suction lines
 - gravity
 - high-side pressure
31. (Fill in the blank) The differential setting for a control device is defined as the _____ the cut in (enable) and the cut out (disable) points of the control.
- average of
 - sum of
 - halfway point between
 - difference between

32. (Fill in the blank) A change in _____ heat results in a change in temperature but not in the state.
- specific
 - external
 - sensible
 - latent
33. Which is a device that uses the evaporation of water to reject both the sensible and the latent heat absorbed in a refrigeration system?
- compressor
 - metering device
 - cooling tower
 - condenser
34. When a halide leak detector detects a leak, the flame will:
- move back and forth rapidly.
 - suddenly become bigger.
 - change to a greenish color.
 - go out.
35. A thermostatic expansion valve works off all of the following pressures **except** _____ pressure.
- bulb
 - condenser
 - evaporator
 - superheat spring
36. (Fill in the blank) Before using a(n) _____ leak detector, consult the compressor manufacturer to ensure that the dye will not harm the compressor and thus void any warranty.
- ultraviolet
 - ultrasonic
 - electronic
 - halide
37. What is range of the control?
- the sum of the minimum and the maximum operating points within which the control will function
 - the difference between the cut in (enable) and the cut out (disable) points of the control
 - the difference between discharge and suction pressures
 - the difference between the minimum and the maximum operating points within which the control will function

38. A refrigerant is a fluid that gives up heat by:
- evaporating at a low temperature and pressure.
 - condensing at a low temperature and pressure.
 - evaporating at a high temperature and pressure.
 - condensing at a high temperature and pressure.
39. Which is an **advantage** of a hermetic compressor?
- is field serviceable
 - optimal on systems in excess of 30 tons
 - does not require lubrication
 - does not need a shaft seal
40. (Fill in the blank) Enthalpy is defined as the total _____ content of a substance.
- chemical
 - heat
 - cooling effect
 - viscous
41. A heat pump cannot operate efficiently once the outside temperature falls below:
- 20°F.
 - 32°F.
 - 50°F.
 - 42°F.
42. Which is **most** likely to cause low to no subcooling?
- oversized condenser
 - thermostatic expansion valve overfeeding
 - inefficient compressor
 - overcharge (too much refrigerant)
43. Which bulb charge is **best** described as a mostly liquid charge that is different from the refrigerant in the system and remains partially liquid as the refrigerant boils and vaporizes?
- liquid charge
 - cross vapor charge
 - cross liquid charge
 - vapor charge
44. Which refrigeration system accessory is used to dampen the hot gas pulsations set up by a reciprocating compressor?
- pressure relief device
 - muffler
 - vibration absorber
 - suction accumulator

45. Which is **most** likely to cause high head pressure?
- low water temperature or ambient air temperature
 - inefficient compressor valves
 - low load conditions
 - overcharge (too much refrigerant)
46. Which is an **advantage** of a capillary tube metering device?
- pressures equalize between the condenser and evaporator during off cycles
 - since sizing is not crucial, generic replacements are viable alternatives
 - no moving parts means no throttling down the flow of refrigerant
 - overcharging the system will only lead to evaporator flooding
47. An engineer wants to use a thermometer that is based on an absolute scale and that has the broadest range of temperatures between the freezing and boiling points of water. Which temperature scale should he use?
- Fahrenheit
 - Rankine
 - Celsius
 - Kelvin
48. Which is **most** likely to cause high suction pressure?
- loss of refrigerant
 - lack of airflow across the evaporator
 - low load conditions
 - inefficient compressor
49. Which is **false** concerning water-cooled chiller condensers?
- they require a cooling tower, water treatment, and regular cleaning of condenser tubes
 - they are generally used in larger capacity systems (up to 1,500 tons) as compared to air-cooled condensers
 - they are less energy efficient than air-cooled condensers when operating at design conditions
 - they are smaller in size compared to air-cooled condensers of similar capacity
50. Where is a receiver located in a refrigeration system?
- after the condenser on the liquid line
 - after the evaporator on the liquid line
 - next to the metering device
 - before the condenser on the vapor line

Practice Exam Answers

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|-----|---|-----|---|
| 1. | C | 26. | A |
| 2. | B | 27. | D |
| 3. | B | 28. | D |
| 4. | D | 29. | C |
| 5. | B | 30. | D |
| 6. | D | 31. | D |
| 7. | B | 32. | C |
| 8. | C | 33. | C |
| 9. | B | 34. | C |
| 10. | B | 35. | B |
| 11. | D | 36. | A |
| 12. | C | 37. | D |
| 13. | D | 38. | D |
| 14. | A | 39. | D |
| 15. | D | 40. | B |
| 16. | C | 41. | B |
| 17. | B | 42. | B |
| 18. | D | 43. | C |
| 19. | A | 44. | B |
| 20. | B | 45. | D |
| 21. | B | 46. | A |
| 22. | B | 47. | B |
| 23. | A | 48. | D |
| 24. | A | 49. | C |
| 25. | D | 50. | A |