

Certificate for Apartment Maintenance Technicians (CAMT)

Interior & Exterior Maintenance and Repair Course

Skill Check #1 – Answer Key

You are Here: Make-ready Maintenance:

1. Why is it important to inspect the apartment before a resident moves out?
 - Check for damages to the apartment and charge the resident for them
 - Estimate work needed in the apartment to have it ready for new move-in
 - Estimate materials and time needed for the make-ready process
 - Schedule contractors needed for the make-ready process
2. What are some of the uses for Make-ready Checklists?
 - Record apartment conditions before a resident moves out
 - List items needed to have the apartment ready for new residents
 - Used as a guideline by maintenance technician to complete a make-ready apartment
 - Document apartment conditions at move in for comparison when a resident moves out
3. Who inspects the apartment when a resident moves out?
 - Manager and/or Maintenance Supervisor
 - Assistant Manager
4. Who inspects the apartment when it is ready for a new move-in?
 - Manager and/or Maintenance Supervisor
 - Leasing Consultant
5. What is the purpose of keeping track of the make-ready process?
 - To know how much progress has been made at any given time
 - To ensure make-readies are being completed in a timely manner
 - To know when the apartment will be ready
6. How can we keep track of the make-ready process?
 - Use a make-ready board
 - Use a computer generated make-ready process

Caulking:

7. Why is it important to use masking tape when caulking with silicone?
 - Silicone caulking can peel up from the edge if tape is not used
 - To have a professional, clean and sharp edge.

8. Why is it important to wet your finger and/or sponge when taking off excess latex caulk?
 - To have a smooth joint
 - To force the caulking into the thin opening to ensure a good seal
9. What are some safety procedures to use when caulking?
 - Use Personal Protective Equipment to protect eyes, nose, skin, and hands
 - Be careful with sharp objects

Ceiling and Walls: Fixing a Dent or Gouge in Drywall:

10. What are some safety procedures to use when working on drywall repairs?
 - Use Personal Protective Equipment to protect eyes, nose, skin, and hands
 - Be careful with sharp objects
 - Use ladders properly
11. What are the steps to perform a drywall repair with paper tape?
 - Prepare area
 - Apply patch
 - Apply joint compound
 - Apply joint tape
 - Sand
 - Texture and paint

Ceiling and Walls: Repairing Orange Peel Surfaces:

12. Which are the two most common ways to do texture repairs?
 - Manually
 - Machine Spray

Re-keying a Door Lock:

13. Why do we re-key a lock during the make-ready process?
 - To ensure no one has a key other than the new resident
14. What is a vacant lock?
 - A set of keyed-alike locks that are used on the property to ease vacant unit key control and improve resident safety

Tile: Cleaning Grout:

15. What are the steps to clean grout properly?
 - Read instructions on chemical solution bottle
 - Ensure that there is enough ventilation
 - Apply spray cleaner

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- Scrub with a stiff brush
- Rinse
- Dry

Curb Appeal and Exterior Inspections:

16. Why is curb appeal important?
- To make sure the community is always attractive to residents, guests and prospective residents
17. What are some of the benefits of having attractive curb appeal?
- Residents are proud to live there
 - It is attractive to new prospects
 - The community is well maintained
18. Whose job is it for a community to have attractive curb appeal?
- All employees
19. What are the uses of the curb appeal checklist?
- To make sure all work is completed properly
 - To record conditions of the curb appeal
 - To list items needed to complete work

Swimming Pool Area Safety:

20. Why are swimming pool safety measures important?
- To keep people safe and reduce or prevent accidents
 - To comply with local, state and federal regulations
21. What is the ideal level of pH in a swimming pool according to NSPF?
- 7.4-7.6

Inspecting Building Exteriors:

22. How often should the exterior of a community be inspected?
- Semi-annually (At least twice per year.)
23. What are the benefits of having a Building Exterior Checklist?
- To record conditions of the exterior of the community
 - To schedule repairs
 - To inspect the community after repairs have been made
 - To aid in budgeting for capitalized repairs to the asset/property

Electrical Maintenance and Repair Course

Skill Check #2 – Answer Key

You Are Here: Electrical Maintenance and Repair

1. When is it acceptable to call an electrician?
 - When it is required by local, state or federal regulations
 - When a technician does not have proper training or is uncomfortable performing the repair
 - When the job is too large or the workload is too heavy

Comparing Electricity and Plumbing:

2. What is the measurement for electrical pressure?
 - Voltage
3. What is the purpose of having different size wires?
 - The larger the wire, the more current it can carry

Electrical Terms:

4. What is Amperes (Amp)?
 - The rate at which current flows through an electrical device
5. What is Ohms?
 - The units that measure electrical resistance
6. What is Wattage?
 - It is a measure of total electricity usage

Electrical Safety:

7. What is the first thing you should do before working on an electrical device?
 - Turn power off and follow tag-out/lock-out procedures
8. Describe the Lock-out/Tag-out procedure.
 - Turn off the source of electrical power
 - Attach a lock-out device to the power source
 - Attach a tag to the power source
 - Discharge any remaining power source in capacitors or equipment
 - Test the device to make sure the power is off
 - Make necessary repairs
 - Turn power back on and test device

9. What is some of the personal protective equipment that is used in electrical work?

- Goggles
- Gloves
- Rubber-soled shoes
- Arc flash face shield

10. What is a GFCI Receptacle?

- It is a receptacle equipped with a Ground Fault Circuit Interrupter safety device. The GFCI constantly monitors electricity flowing in and out of a circuit, and can sense any loss of current (amperage). If the current flowing through the circuit differs by a small amount, the GFCI quickly switches off power to that circuit.

The Electrical System:

11. Where does power come from?

- Power plant generate electricity

12. How does the power company measure the electricity we use?

- With an electrical meter that measures kilowatts per hour being used

13. What protects circuits from shorts and overloads?

- Breakers or fuses

14. What types of voltage are found in apartment homes?

- 120 Volt for electrical outlets, lamps, and small appliances
- 240 Volt for HVAC, water heaters, electric ranges, and dryers
- 24 Volts for HVAC controls and the thermostat

Electrical Circuits:

15. What is the purpose of the black wire?

- The hot wire carries electrical current to the electrical device

16. What is the purpose of the white wire?

- The neutral wire returns current to the service panel

17. What is the purpose of the green or bare wire?

- The safety ground wire directs electricity to the ground to make it harmless in the event of a short in the circuit or defective appliance

Tools for Electrical Repairs:

18. What type of ladder is recommended for electrical work?

- Fiberglass

19. What type of tool is recommended to remove plastic insulation from wires?

- Wire strippers

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20. What is the purpose of having well-insulated handles on electrical tools?
- To prevent electrocution
21. What is the purpose of using electrical test tools?
- To check if power is off in the electrical device
 - To check if there is an open circuit
 - To check if an electrical device is grounded or shorted out
 - To verify if the proper amount of voltage or amperage is supplying the device
22. What are some of the functions of an electric testing meter?
- To check resistance in an electrical device with Ohms
 - To test for continuity
 - To check pressure in an electrical device with Volts
 - To check the current in an electrical device with Amps

Electrical Wires:

23. What size wire is recommended for 15 amps, 120 volt light fixtures and receptacles?
- #14
24. What size wire is recommended for 30 amps, 240 volts large appliances?
- #10

Main Service Panels, Fuses, and Circuit Breakers:

25. What makes a breaker trip?
- A short in the circuit
 - A faulty connection
 - An overloaded circuit
26. What item does a breaker protect?
- The wire in the walls of the building
27. How do you reset a tripped breaker?
- Flip breaker all the way to the OFF position
 - Flip breaker to the ON position

Wall Switches:

28. What could be the problem if the breaker trips when you turn a wall switch on?
- Shorted/grounded out switch
 - Faulty connection
 - Shorted/grounded out electrical device
 - Problem with the wire in the wall

29. What is a three-way switch?

- It is a switch with three screw terminals that when used in pairs can allow control of a single device from two separate locations

Receptacles:

30. What is the small slot in an electrical receptacle?

- It is the “hot” slot with 120 volts

31. What could be the problem in a receptacle that feels warm?

- The receptacle is overloaded
- There is a faulty connection in the wiring
- The wire is too small

Fluorescent Light Fixtures:

32. What are the parts of a fluorescent light fixture?

- Ballast
- Sockets
- Bulb
- Cover
- Shade/diffuser

33. What could be the problem in a fluorescent light fixture that is flickering?

- Loose light bulb
- Defective light bulb
- Defective ballast
- Defective socket
- Loose connection
- Defective starter (old fixtures)

Smoke Detectors and Carbon Monoxide Detectors:

34. What could be the problem in a smoke detector that does not sound when the button is pushed?

- No power
- Broken buzzer/speaker

35. What should be used to test the full function of a smoke detector?

- “Smoke in a can” type product
- Smoking match

Plumbing Maintenance and Repair Course

Skill Check #3 – Answer Key

You Are Here: Plumbing Maintenance and Repair:

1. What are some safety hazards to be aware of when working on plumbing?
 - Having something falling on top of you
 - Burning yourself with something hot
 - Cutting yourself with something sharp
 - Falling on a wet floor or slippery floor
 - Getting infected with a body fluid or bacteria
 - Getting sick by breathing harmful chemicals
 - Coming in contact with or splashing chemicals
 - Getting electrocuted
2. When is it best to use a plumber for a repair?
 - When state or local regulations require it
 - When the job is too large
 - When the employee does not have proper training or is not sure about the procedure
 - When the employee does not have the required specialty tools
 - When employees are overloaded with work or shorthanded
 - When the item is under warranty

Plumbing in an Apartment Building:

3. What are the three systems in plumbing?
 - Water Supply
 - Water Distribution
 - Waste Exit

Plumbing Safety:

4. How can accidents be prevented when doing plumbing repairs?
 - Taking proper time to do repairs
 - Having a well organized work environment
 - Making sure water is off before doing any repairs
 - Following lock-out/tag-out procedures
 - Using plumbing tools properly
 - Using the right parts for the job

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- Using personal protective equipment
 - Following equipment safety directions
 - Being familiar with SDS Sheets for chemicals being used
5. Describe the Lock-out/Tag-out Procedure:
- Shut off the source of water or electricity
 - Attach a lock-out device and tag to this source
 - Release or drain any energy or pressure left in the plumbing or electrical lines or equipment
 - Test to be sure the energy or pressure is turned off

Pipes and Fittings:

6. What are some of the types of pipes found in plumbing systems?
- Copper
 - PVC or CPVC
 - Cast Iron
 - Brass
 - PEX
7. What is flux?
- An acid that is used to prepare a metal surface (such as copper) for soldering

Faucets and Sinks:

8. Describe the most common types of faucets
- Ball
 - Cartridge
 - Disc
 - Compression

Replacing a Faucet:

9. What are the steps to replacing a faucet?
- Turn water going to the faucet off
 - Check to make sure water is off
 - Remove faucet water and drain lines
 - Remove faucet lock nuts and faucet
 - Clean area
 - Place sealant under the faucet (plumber's putty or silicone)
 - Install new faucet
 - Turn water back on and check for leaks

Garbage Disposals:

10. What are some of the safety precautions when working with garbage disposals?
 - Follow lock-out/tag-out procedures (Electrical and Plumbing)
 - Use personal protective equipment to protect face, hands, and body
 - Do not place hands inside disposal
11. What are some things that should never be put in a garbage disposal?
 - Anything that is not biodegradable
 - Anything hard (bones, eggshells)
 - Anything that is not chewable
12. What temperature should water be that is used while the disposal is operating?
 - Cold

Tubs and Showers:

13. What are some safety precautions to be used when working with tubs and showers?
 - Turn water off and check to make sure it is off
 - Use personal protective equipment to protect face, hands, and body
 - Use proper tools
 - Be careful with slippery surfaces
 - Clean working area
14. What are the three main types of shower faucets?
 - Three handles
 - Two handles
 - Single handle

Toilets:

15. What are some safety precautions to be used when working with toilets?
 - Turn water off and test to make sure it is off
 - Use personal protective equipment to protect face, hands, and body
 - Handle body fluids with caution
 - Be careful with slippery surfaces
 - Use proper tools
 - Follow installation instructions
 - Be familiar with SDS sheets for chemicals being used
16. What is the principal of physics that causes a toilet to flush?
 - A siphon
17. What are the steps to replace a toilet?
 - Turn water off and test to make sure it is off
 - Remove water from the old toilet

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- Disconnect water supply line
- Disconnect toilet from floor/wall
- Remove old toilet (request assistance if necessary)
- Clean area
- Install new wax seal on the toilet bottom
- Install new bowl and tank
- Turn water back on and test

Drains and Clogs:

18. What is the best way to unclog a toilet?

- Plunger
- Toilet auger (never use any chemicals to unclog a toilet)

19. What tools can be used to unclog a sink or tub?

- Plunger
- Snag tool (Zip-It)
- Snake

Water Heaters:

20. What are some safety precautions to be used when working with water heaters?

- Follow lock-out/tag-out procedures for electricity, gas, and water
- Drain water out completely if you are replacing the water heater
- Use proper tools and replacement parts
- Use personal protective equipment to protect face, hands, and body
- Follow equipment instructions properly
- Request assistance when necessary
- Follow lifting techniques properly

21. What are the steps to replace a water heater?

- Turn water and power or gas off and test to make sure it is off
- Follow lock-out/tag-out procedures
- Disconnect water and power or gas lines
- Drain water from old water heater completely
- Clean area
- Install new water heater according to equipment specifications
- Fill tank with water prior to turning on the power or gas
- Test water heater for proper operation

22. What is the purpose of installing a Temperature and Pressure Relief Valve on a water heater?

- To protect the tank from over pressure

23. How do you replace a Thermocouple in a gas water heater?

- Turn gas off and follow lock-out/tag-out procedures
- Wait at least 10 minutes for gas to dissipate
- Remove pilot gas tube or bracket if needed and remove the old thermocouple
- Install new thermocouple and pilot gas tube or bracket if removed
- Turn gas back on and test for leaks
- Follow instructions to light pilot

Heating Systems Maintenance and Repair Course

Skill Check #4 – Answer Key

You Are Here: Heating Maintenance and Repair

1. When is it acceptable to call a Heating Specialist?
 - When is required by local, state or federal regulations
 - When the technician does not have the proper training or information
 - When the job is too large or workload is too heavy
 - When the technician is not certified (if refrigerant is used for heating)
 - When the equipment still under warranty

Heating System Safety:

2. What are some of the safety precautions to be taken when working on heating systems?
 - Turn power off and follow lock-out/tag-out procedures
 - Allow plenty time for equipment to cool off
 - Use personal protective equipment to protect face, hands, and body
 - Discharge accumulated power in capacitors by shorting across the terminals
 - Take precautions to work with high temperatures
 - Have working area well-ventilated to avoid breathing fumes from combustion
 - Report gas leaks to supervisor
 - Be familiar with SDS sheets for chemicals being used
 - Keep working area and tools clean and in excellent condition
 - Follow equipment and tool manufacturers' directions properly
 - If you smell gas do not turn any switches or electrical devices on or use the telephones, cell phones or two-way radios
 - Turn gas off and ventilate the area immediately
 - Do not bypass any safety switches or devices

Key Tools for Heating Repairs:

3. What tool can be used to test the heating element on an electric heater?
 - Multimeter
4. What tool is used to test presence of carbon monoxide?
 - Carbon monoxide detector

Air Distribution:

5. What is the function of the blower in a heating system?
 - To move and circulate air
6. What is the function of the Fan Limit Control Switch?
 - To turn fan blower motor ON and OFF according to the preset temperature of air
7. What problems can a clogged air filter cause?
 - Poor air circulation
 - System not heating properly
 - Overheated heat exchanger
 - Damaged blower motor
8. What can cause blower motor to not start?
 - No power
 - Defective fan motor relay
 - Defective thermostat
 - Defective fan motor or capacitor
9. What are the different methods of heat transfer?
 - Conduction
 - Convection
 - Radiation
10. Which types of heating systems are found in apartments?
 - Electric
 - Gas
 - Hydronic

Electric Furnace Heating:

11. What is the function of the heating coil?
 - To add heat to circulating air
12. What is the function of the sequencer relay?
 - To order events in an HVAC system
13. Which are the two safety devices that turn the heating element OFF in case of a malfunction in the heating system?
 - Limit Switch
 - Fusible Link
14. What can cause heat to not work?
 - No power or improper voltage
 - Defective thermostat or transformer
 - Defective sequencer relay
 - Defective fan relay

- Defective limit switch
- Defective fuse link
- Defective heating element

Gas Furnace Heating:

15. Which are the three elements required to create combustion?
- Fuel
 - Ignition
 - Oxygen
16. Which toxic gases are created when combustion is not fully achieved?
- Carbon monoxide
 - Aldehyde gasses
17. What is the function of the gas valve?
- To control the flow of gas to the furnace
18. What is the function of the ignition system?
- To ignite gas at the burner
19. What is the name of the safety device that ignition systems with standing pilots use?
- Thermocouple
20. What is the function of the flue pipe?
- To vent exhaust gasses out of the building
21. What can keep a pilot from staying ON?
- Gas line to pilot is clogged up
 - Wind is turning flame OFF
 - Defective thermocouple
 - Defective gas valve
 - Thermocouple is not properly seated in the flame or incorrectly installed
22. What happens when there is not enough oxygen in the heating exchanger?
- Combustion is not fully completed, creating carbon monoxide
 - Heater will not work properly and safely

Hydronic Heating Systems:

23. How is heat created in a Hydronic System?
- Hydronic Systems use the heat created by water heaters or boilers
24. What is the function of an Aquastat?
- A temperature sensing device that turns the boiler ON and OFF to keep the water at a desired temperature
25. What is a Circulator?

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- A motor, a linkage, pump and an impeller that move water through the hydronic system

26. How can rusty water be removed from a hydronic system?

- Turn power OFF and follow lock-out/tag-out procedures
- Turn drain valve OPEN until clear water comes out
- Close drain valve and fill system up with clean water
- Turn power back ON and test system

Air Conditioning Maintenance and Repair Course

Skill Check #5 – Answer Key

You Are Here: Air Conditioning Maintenance and Repair

1. When is it acceptable to call an Air Conditioning Specialist?
 - When it is required by local, state or federal regulations
 - When the technician does not have the proper training or information
 - When the job is too large or workload is too heavy
 - When the technician is not certified
 - When the equipment still under warranty

Air Conditioning Safety:

2. What are some of the safety precautions to be taken when working on air conditioning equipment?
 - Turn power off and follow lock-out/tag-out procedures
 - Allow plenty time for equipment to cool off
 - Use personal protective equipment to protect face, hands, and body
 - Discharge accumulated power in capacitors by shortening the terminals
 - Take precautions to work with high temperatures and pressures
 - Have working area well-ventilated to avoid breathing refrigerant
 - Report refrigerant leaks to supervisor
 - Be familiar with SDS sheets for chemicals being used
 - Keep working area and tools clean and in excellent condition
 - Follow equipment and tool manufacturers' directions properly

Key Tools for Air Conditioning Repairs:

3. Which tool is used to check voltage, ohms, and amperage in an Air Conditioning System?
 - Multimeter
4. Which tool is used to check refrigerant pressure in an Air Conditioning System?
 - Manifold gauge set
5. What are two ways to locate a refrigerant leak in an Air Conditioning System?
 - With an electronic leak detector
 - With leak detection soap bubbles
6. What is the equipment used to remove air and moisture from an Air Conditioning System?
 - Vacuum Pump

7. What equipment would a technician use to remove refrigerants from a system for servicing?
- Recovery machine

Refrigerants and their Special Properties

8. What are refrigerants?
- Substances used in comfort cooling equipment to move heat from one location to another
9. What are some examples of refrigerants found in Air Conditioning Systems?
- R-22
 - R-410A
10. What happens to the refrigerant pressure when the temperature rises?
- Pressure rises
11. What is refrigerant boiling point?
- The temperature and pressure at which refrigerant changes from a liquid to a vapor
 - Saturation point

The Air Conditioning System:

12. What are the four main parts of an Air Conditioning System?
- Compressor
 - Condenser
 - Metering Device
 - Evaporator
13. What is the Air Handler Unit?
- Piece of equipment inside the apartment that moves air throughout the apartment
14. Where is the Condenser Unit located?
- Outside the apartment
15. What is the purpose of an Air Conditioning's cooling system?
- To absorb heat in one location (inside the apartment) and move that heat to another location (outside the apartment)

The Refrigeration Cycle in an Air Conditioning System:

16. What is the stage of the refrigerant entering the compressor?
- Low temperature and low pressure vapor

17. What is the state and pressure of the refrigerant leaving the compressor and entering the condenser coils?

- High temperature and high pressure vapor

18. What is the state and pressure of the refrigerant leaving the condenser coils and entering the metering device?

- High temperature and high pressure liquid

19. What is the state and pressure of the refrigerant leaving the metering device and entering the evaporator?

- Low temperature and low pressure liquid

20. What is the state and pressure of the refrigerant leaving the evaporator?

- Low temperature and low pressure vapor

Key Parts of an Air Conditioning System:

21. What is the function of the compressor?

- To pump refrigerant throughout the system, raising low temperature and low pressure vapor refrigerant to a high temperature and high pressure vapor refrigerant

22. What is the function of the condenser?

- To cause air to absorb heat from refrigerant

23. What is the function of the metering device?

- To regulate the quantity of refrigerant flowing to the evaporator, lowering its temperature and pressure

24. What is the function of the evaporator?

- To allow refrigerant to absorb heat from air

The Superheat Method:

25. What is superheat?

- The additional heat added to the refrigerant in the evaporator after it has already changed to a vapor

26. How many degrees of superheat are expected in a system properly charged?

- Depends on temperature per manufacturer standards

The Sub-cooling Method:

27. What is sub-cooling?

- The additional heat removed from the refrigerant in the condenser after it has already changed to a liquid

28. How many degrees of sub-cooling are expected in a system properly charged?

- Depends on temperature per manufacturer standards

Recovering Refrigerant:

29. What is recovering refrigerant?

- Using a recovery machine or approved device to remove refrigerant from the system and place it into an approved container

30. What does it mean to recycle refrigerant?

- A process of cleaning recovered refrigerant so that it can be used on the same property in another system

31. Who can reclaim refrigerant?

- A chemist or processor

Evacuating and Dehydrating the System:

32. What is evacuating the system?

- Removing air and moisture from inside the sealed refrigerant system and expelling it to the atmosphere with the use of a vacuum pump

Electrical System Repairs:

33. What types of circuit are used in Split System Air Conditioning units?

- Load circuits or high voltage circuits (usually 240 volts)
- Low voltage control circuits (usually 24 volts)

34. What type of device is used to check voltage in a system?

- Volt Meter or a multimeter

35. What is the proper way to check a thermostat?

- Check 24 volts coming into the thermostat through the red wire
- Check 24 volts going out to fan, cool, and heat (green, yellow, and white wires)
- Check temperature setting for accuracy
- Check for proper installation

Load Circuits: Compressors:

36. How many terminals are located in the compressor?

- Three (Common, Start, and Run)

37. What can cause compressor not to start?

- No power or improper voltage
- Open winding inside the compressor or shorted out
- Defective start capacitor or defective contactor
- Broken wire on terminals
- Compressor overheated

Load Circuits: Fan Motors

38. What can cause the condenser fan motor not to start?

- No power or improper voltage
- Open winding inside the fan motor or shorted out
- Defective run capacitor
- Broken wire on terminals
- Defective contactor
- Fan motor overheated

Air Distribution:

39. Which types of blower motors are used in Air Conditioning Systems?

- PSC (Permanent Split Capacitor)
- ECM (Electronically Commuted Motor)

40. How can you check a blower motor?

- Check power to make sure motor is getting proper voltage
- Turn power off and follow lock-out/tag-out procedures
- Disconnect motor wires and check each wire/terminal for resistance per manufacturer instruction
- Disconnect capacitor and check it with an Ohm meter

Appliance Maintenance and Repair Course

Skill Check #6 – Answer Key

You Are Here: Appliance Maintenance and Repair

1. When is it acceptable to call an Appliances Specialist?
 - When is required by local, state or federal regulations
 - When the technician does not have the proper training or information
 - When the job is too large or workload is too heavy
 - When the technician is not certified and the repair involves refrigerant
 - When the equipment still under warranty

Appliance Safety

2. What are some of the safety precautions to be taken when working with appliances?
 - Turn power OFF and follow lock-out/tag-out procedures
 - Allow plenty time for equipment to cool off
 - Use personal protective equipment to protect face, hands, and body
 - Discharge accumulated power in capacitors by shorting across the terminals
 - Take precautions to work with high temperatures
 - Follow proper directions for lifting heavy equipment
 - Report any unsafe conditions to your supervisor
 - Be familiar with SDS sheets for chemicals being used
 - Keep working area and tools clean and in excellent condition
 - Follow equipment and tool manufacturers' directions properly
 - Do not bypass any safety switches or devices
 - Be careful with sharp edges on equipment

Repair or Replace

3. What considerations should a technician take into account when deciding whether to repair or replace equipment?
 - The decision to repair or replace is always based on the dollar amount as well as the amount of time it would take to repair a given appliance.
 - Technicians should always refer to company policy/procedure/standards before making a decision.

Key Tools for Appliance Repairs

4. What tool will be needed to check an electrical problem on an appliance?
 - A multimeter
5. What tool will be needed to check temperature on an appliance?
 - A digital thermometer

Diagnostic Plan

6. What are the steps in completing a diagnostic plan before attempting a repair?
 - Listen
 - Observe
 - Research
 - Access and Test
 - Document

Chemicals

7. What rules are critical to observe when using chemicals?
 - Do not over/under dilute concentrated products.
 - Do not mix chemicals unless it is under the specific instruction of the manufacturer.
 - Never add water to chemicals; only add chemicals to water.

Clothes Dryer Maintenance and Repair

8. What are the three basic functions needed for a dryer to dry clothes?
 - Air, heat, and motion (rotation)
9. What is the main function of the Exhaust Duct?
 - To allow moisture to be transfer from the dryer to the outside of the building
10. How is the temperature controlled inside the dryer?
 - By a thermostat located inside the vent that senses the temperature and turns the heating element ON and OFF to maintain the desired temperature
11. What could be the problem in a dryer that does not turn ON?
 - No power, caused by a tripped breaker or blown fuse
 - A faulty electrical cord
 - Defective start switch or motor
 - Defective internal fuse
12. What could be the problem in a dryer that runs but produces NO heat?
 - Not receiving proper voltage
 - Defective internal fuse

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- Defective heating element
 - Clogged exhaust duct
 - Defective thermostat
13. What device stops the dryer when the dryer door is opened?
- Door switch
14. What can be the problem in a dryer that dries clothes too hot?
- Defective thermostat
 - Obstruction in the exhaust vent

Clothes Washer Maintenance and Repair

15. What are the three basic elements for a washer to clean clothes?
- Detergent, Water and Clothes
16. Which are the basic functions of a clothes washer?
- Fill, agitate, drain, and spin
17. What is the Agitator?
- The finned apparatus in the center of upright washing machines that moves back and forth or up and down to clean laundry
18. Which are the two types of motors in washers?
- Direct-Drive
 - Belt-Drive
19. What is the function of the timer switch in a washer?
- To send power to different devices to make washer fill, agitate, drain or spin as it goes through the cycles
20. What could the problem be in a washer that does not turn ON?
- No power, caused by a tripped breaker or blown fuse
 - Defective cord or wall electrical outlet
 - Defective timer or door switch
21. What could be the problem in a washer that the agitator does not work?
- Defective agitator or agitator solenoid
 - Defective motor or transmission
 - Defective timer
22. What could be the problem in a washer that does not fill up with water?
- Water valves are OFF
 - Clogged or kinked water hoses or filter screens
 - Defective water level switch
 - Defective timer solenoid
23. What could be the problem in a washer that shakes out of balance?
- Washer has been overfilled with clothes

- Machine is not level
 - Tub balance spring or bracket broken, loose, or disconnected
24. What are the steps to take when replacing an electrical component in a washer?
- Turn power OFF and follow lock-out/tag-out procedures
 - Check component with an Ohm meter
 - Replace component with another one of the same model, capacity, voltage and features
 - If a universal component is used, follow instructions in detail
 - Do not bypass or alter any functions or features
 - Turn power back ON and check for proper operation

Cook-top and Oven Maintenance and Repair:

25. What is indicated if only $\frac{1}{2}$ of the burner ignites when lit?
- Clogged burner orifice

Key Parts of an Electric Range:

26. Which devices are located in the range control panel?
- Burner switches
 - Oven thermostat
 - Clock
 - Indicator lights
 - Oven selector switch
27. What is the function of the burner switch?
- Turn burner ON and OFF and maintain burner temperature at desired setting
28. What is the function of the oven thermostat?
- Turn bake and broiler elements ON and OFF and maintain oven temperature at desired setting
29. What is the function of the indicator lights?
- They are red lights that when turned ON indicate the cook-top or the oven is ON
30. What is the function of the oven selector switch?
- To turn ON or OFF the bake or the broiler elements
31. What could the problem be in a range that does not turn ON?
- No power, caused by a tripped breaker or blown fuse
 - Faulty cord
 - Defective wall electrical outlet
 - Defective terminal block or damaged internal wiring
32. What could the problem be in a range where one burner does not work?

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- Defective burner switch
 - Defective burner
 - Faulty connection on burner terminal
33. What could the problem be in a range where the burners work, but the oven does not work?
- Defective bake or broil element
 - Defective thermostat
 - Defective oven selector switch
 - Damaged, broken or burned wiring
34. What could the problem be in a range where the oven is overheating?
- Defective thermostat
 - Defective door gasket
 - Defective oven selector switch
35. What are the steps to take when replacing an electrical component in a range?
- Turn power OFF and follow lock-out/tag-out procedures
 - Check component with an Ohm meter
 - Replace component with another one of the same model, capacity, voltage and features
 - If a universal component is used, follow instructions in detail
 - Do not bypass or alter any functions or features
 - Turn power back ON and check for proper operation

Common Gas Cook-Top Problems and Solutions

36. What could be the problem with a pilot flame that does not stay ON?
- Clogged gas line to pilot
 - Defective gas valve
 - Pilot flame adjustment screw not set properly
37. What keeps burner flames from working properly?
- Clogged ports on burner from grease, food particles or dirt
 - Defective control switch on burner
 - Defective gas valve
 - Not enough primary air going to burner
 - Not enough gas pressure going to range
38. What is an Igniter?
- An electronic device that works just like a pilot but instead of gas it uses heat from an electrical spark to light the flames on a range
39. What is the proper way to check a thermostat on an oven?
- Inspect the oven thermostat probe for proper installation inside the oven
 - Place oven thermometer in the center of the oven

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- Turn oven ON and set temperature to 350 degrees
- Let the oven warm until you hear the thermostat click OFF
- Read the thermometer and write the reading down
- Repeat steps 4 and 5 two more times
- Take your three readings, add them together and divide by three
- This final reading is the average thermostat reading
- If your oven temperature is too high or too low, adjust the thermostat settings located on the back of the oven knob or in some models, a set screw on the oven thermostat itself. Most have degree indicators to help you adjust the readings.
- Re-test the oven temperature once you have adjusted it
- If temperature difference cannot be adjusted, replace thermostat

Dishwasher Maintenance and Repair

40. What are the basic cycles of a dishwasher to clean dishes?

- Fill with hot water
- Spray hot water with internal arms/jets to clean dishes
- Drain dirty water out
- Fill with hot water again
- Spray hot water with internal arms/jets to rinse dishes
- Drain dirty water out
- Heat Dishwasher to above 165° to sanitize
- Dry dishes or air dry

Key Parts of a Dishwasher

41. What are the functions of the timer in a dishwasher?

- To send power to the different electrical components to turn them ON at different times of the filling, washing, draining, rinsing, sanitizing and drying cycles

42. What are the functions of the pump in a dishwasher?

- To pump water to the internal arms/jets to wash dishes and to pump dirty water out of the dishwasher during the drain cycle

Common Dishwasher Problems and Solutions

43. What could the problem be when a dishwasher does not come ON?

- No power, caused by a tripped breaker or blown fuse
- Defective cord or loose connections in the dishwasher electrical box
- Defective door and/or latch switches
- Defective timer

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- Defective water level switch
 - Defective pump motor
44. What are the steps when replacing an electrical component in a dishwasher?
- Turn power OFF and follow lock-out/tag-out procedures
 - Check component with an Ohm meter
 - If a switch, check continuity
 - If a motor, check resistance value
 - Look for short by testing to ground
 - Replace component with another one of the same model, capacity, voltage and features
 - If a universal component is used, follow instructions in detail
 - Do not bypass or alter any functions or features
 - Turn power back ON and check for proper operation
45. What could the problem be when there is water standing inside the dishwasher?
- Clogged drain line or clogged garbage disposal
 - Kinked drain hose
 - Defective pump
 - Defective timer switch
 - Defective drain solenoid
 - Disposals drain plug for the dishwasher connection was not removed during disposal installation
46. What could cause water not to be hot enough in a dishwasher?
- Cold water line connected to dishwasher
 - Water heater not working properly in the apartment
 - Defective heating element in dishwasher
 - Defective timer switch
 - Due to pipe run and/or design, cold water sitting in the hot water pipe
47. What could the problem be when dishes have spots on them?
- Dishes not placed inside dishwasher correctly
 - Proper detergent not being used
 - Dirty water not draining properly
 - Water amount or quality not sufficient
 - Water temperature not hot enough
48. What could cause a dishwasher to leak water?
- Proper detergent not being used
 - Defective door gasket
 - Water supply line connections are loose or water line is damaged
 - Drain hose damaged

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- Defective water level switch
 - Defective timer
 - Defective pump or motor seal
49. What could the problem be if NO water is going to the dishwasher?
- Water is turned OFF
 - Inlet Valve clogged
 - Defective inlet valve
 - Defective timer
 - Defective water level switch
 - Defective door and/or latch switch(s)
50. What could cause dishes not to be dry enough?
- Defective selector switch for air/heat dry setting
 - Defective heating element
 - Defective timer
 - Water not draining properly

Refrigerator Maintenance and Repair

51. How does a refrigerator keep food cool?
- Much like an air conditioner, a refrigerator removes heat from an enclosed space with the use of refrigerant traveling to an evaporator and absorbing heat from the air and transporting this heat to the outside
52. What are the main components of a refrigerator?
- Compressor
 - Condenser coils
 - Expansion device
 - Evaporator coils
 - Refrigerant
53. What is the main function of the compressor?
- To pump refrigerant around the system and increase the temperature and pressure of the vapor refrigerant as it passes through its valves
54. What is the main function of the condenser coils?
- To remove heat from the high temperature/pressure vapor refrigerant and condense it to a high temperature/pressure liquid
55. What is the main function of the expansion device?
- To regulate the flow of refrigerant entering the evaporator and lower its temperature and pressure to a low temperature/pressure liquid
56. What is the main function of the evaporator?

- To take the low temperature/pressure liquid refrigerant through a coil and absorb the heat in the air traveling across the coil, lowering the temperature inside the refrigerator

Refrigerator Problems and Solutions

57. What can cause refrigerator not to come ON?

- No power, caused by a tripped breaker or fuse
- Defective cord or wall electrical outlet
- Defective defrost timer
- Defective thermostat
- Defective compressor or start relay

58. What can the problem be when refrigerator is ON but does not cool?

- Defective thermostat
- Defective compressor
- Defective defrost timer
- Low refrigerant pressure
- Defective door gasket
- Dirty coils
- Blocked air circulation
- Evaporator coils covered in ice

59. What causes refrigerator door to sweat?

- Refrigerator overloaded with food
- Damaged door gasket
- Defective defrost timer
- Defective mullion or case heater
- Oversized light bulb or defective light switch

60. What is the problem in a refrigerator that is freezing up?

- Defective defrost heater
- Defective defrost timer
- Defective thermostat.
- Defective evaporator fan

61. What causes water inside the bottom of the refrigerator?

- Clogged drain cup or line
- Door left open or constantly being open and close, creating condensation
- Damaged door gasket
- Defective defrost timer

62. What can be the problem when ice maker is not working?

- Clogged or dirty coils

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- Water turned OFF to the ice maker
- Kinked water line
- Freezer temperature not cold enough; 0° F to 8° F required
- Defective fill valve
- Defective ice maker

63. What are the steps when replacing an electrical component in a refrigerator?

- Turn power OFF and follow lock-out/tag-out procedures
- Check component with an Ohm meter
- Replace component with another one of the same model, capacity, voltage and features
- If a universal component is used, follow instructions in detail
- Do not bypass or alter any functions or features
- Turn power back ON and check for proper operation

A Day in the Life of A Maintenance Technician Online Course

Skill Check #7 -- Answer Key

1. When should you pick up trash around the property?
 - **Every time you see trash, you should pick it up**
 - When you first get to work
 - When you go to lunch
 - Just before you go home
2. Emergencies on a property are usually defined by maintenance technicians as:
 - **Fire, Flood, Blood**
 - Fire, No Power, Flood
 - Upset Resident, Safety Issues, Corporate Office Requests
 - Quick Move-in, Flood, Manager Request
3. When interacting with residents it is important to be:
 - Cooperative
 - Friendly
 - Professional
 - **All of the above**
4. Which of the following skills contributes to the best customer service experience for residents?
 - Professional certifications
 - Required licenses
 - **Positive attitude**
 - Prior maintenance experience
5. Which set of terms best reflects proper usage in the apartment industry?
 - Units, Project, Residents
 - Tenants, Community, Units
 - **Residents, Community, Apartment Home**
 - Landlord, Tenants, Manager

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6. Why is it very important to meet the needs of the resident?
 - **There are fewer complaints, residents renew leases, residents refer their friends to live at the property**
 - Residents bring you food, residents refer their friends, you get an extra day off
 - There are fewer complaints, the manager congratulates you, the leasing agent buys your lunch
 - Feeling of accomplishment, residents renew leases, you get a bonus

7. Who are your customers?
 - Residents
 - Prospective residents
 - Management team
 - **All of the above**

8. What techniques can you use to be a good listener?
 - Project confidence, put aside distractions, and let residents know immediately when they are wrong
 - **Pay attention, ask questions, be respectful and calm**
 - Maintain eye contact, always say yes because the customer is always right, take notes
 - Repeat back what you've heard for clarity, then tell the resident you will take care of everything that day

9. When going to an occupied apartment home, you should:
 - Introduce yourself, call the resident by first name, and tell them why you are there
 - Announce that you are maintenance staff and go into the apartment
 - **Introduce yourself and call the resident by name, then wait to be invited in**
 - Just walk in when the resident answers since they know you are coming by

10. How many times should you knock on the door before determining that no one is home?
- Once, then open the door, announce yourself, and do the work
 - Twice, then open the door, announce yourself, and do the work
 - **Three times, then enter announcing yourself through the entire apartment**
 - There is no need to knock if you know the resident isn't at home
11. When working in an occupied apartment home and no one is home you should:
- Complete the repair(s), then look around to check for other problems
 - **Complete the repair(s) and leave a note about what you did**
 - Complete the repair(s), then inspect the apartment home for cleanliness
 - All of the above
12. What do you do if you see unsafe or otherwise reportable conditions in the home?
- Tell the resident what is wrong and ask them to fix it
 - Leave the resident a note that something is wrong
 - **Report it to the manager**
 - Call the police
13. When should you not enter a home to complete a service request?
- **When minors are present alone or pets are unrestrained**
 - When the resident is not home
 - When the bath tub is leaking into the residence below
 - When a service request is submitted in Spanish
14. How do you respond to an upset customer?
- Don't apologize, but try to calm the resident down by offering a snack or drink
 - Tell the resident to stop speaking so loudly
 - **Act professionally, remain calm, listen without interruption**
 - Immediately start work so the resident will calm down

15. What do you do when you cannot complete a repair?

- Tell the resident you need different parts and will come back whenever you get a chance
- **Explain the situation to the resident and let her know what to expect**
- Tell the resident you need to talk to the manager about the number of requests you've been getting
- Promise the resident that you will fix the problem the next day

16. Why is it almost always best to talk to the management team in person about a property issue?

- To be sure you have a clear understanding of a request
- To reduce the chance of a Fair Housing violation
- To provide privacy if a conversation moves into a confidential area
- **All of the above**

17. When do you submit a contractor's bill to be paid?

- Before the work has been inspected
- After all project corrections have been completed
- After the entire project is finished
- **After all checklists have been approved and signed**

18. While you are performing a service request, if a resident asks for additional work to be done, what is the proper response?

- Tell the resident to call the office and schedule the work with management
- Tell the resident you are really busy, but will send someone else to do the work
- **If you have time, do the work and document the additional task**
- Never do anything until you verify with management that it is OK to proceed

19. How can you participate in leasing team safety?

- **Have code words for management personnel to let you know there is a problem**
- Tell the leasing agent which apartment you are working in so they can keep that unit unlocked
- Give the leasing agent a loud whistle to blow if they are in trouble
- Tell the leasing agent to just give you a call if they don't feel safe

20. A successful relationship between the management team and the property's maintenance technicians requires which of the following characteristics?

- Clear communication
- Follow-through on tasks
- Respect and politeness
- **All of the above**

21. Good documentation – documenting everything and keeping it organized – is important because:

- It saves the company money
- It demonstrates that the work was done properly
- It proves what was and was not done, in case of a lawsuit
- **All of the above**

22. What takes precedence for a maintenance technician on a given day?

- The list of make-ready units
- A long-term project to clean the tool storage area
- **An unexpected emergency**
- Ongoing service requests

23. Which resident should receive a response to his service request first?

- The resident who always smiles and says hello
- The resident who is grouchy and complaining
- **The resident who submitted his request last week**
- The resident who submitted his request this morning