

# Water Heater Test

| #  | Question  | Choice A                         | Choice B                           | Choice C                           | Choice D                                | Answer |
|----|---|----------------------------------|------------------------------------|------------------------------------|---|--------|
| 1  | Of the water heater types listed, which was installed most often in U.S. homes for 2023?  | Gas Tankless Water Heaters       | Gas Tank Water Heaters             | Electric Tankless Water Heaters    | Electric Tank Water Heaters             |        |
| 2  | What is the name of the new U.S. Department of Energy (DOE) water heater rules?   | Energy Waste Reduction Standards | Emissions Reduction Standard Rules | Energy Conservation Standard Rules | Energy Efficiency Improvement Standards |        |
| 3  | The DOE Energy Conservation Standard Rules apply to electric tank water heaters that hold 10-30 gallons of water.   | TRUE                             | FALSE                              |                                    |   |        |
| 4  | According to DOE Energy Conservation Standard Rules, which of the following is now a requirement for gas-fired instantaneous water heaters?                                 | InDirect-Heating Technology      | Direct-Heating Technology          | Heat Pump Technology               | Condensing Technology                   |        |
| 5  | Which are the following terms were used for a standard type of water heater in the lesson?  | Point-of-Use                     | Condensing Water Heater            | Direct-Fired                       | Heat Pump Water Heater                  |        |
| 6  | Which of the following applications usually has a plumbing system with several different types of water heaters?  | Hospitals                        | Schools                            | Office Buildings                   | Restaurants                             |        |
| 7  | Which the parts listed are in a Combination Boiler & Water Heater?  | Thermostat                       | Burner                             | Heat Exchanger                     | Condensate Drain                        |        |
| 8  | Is the following statement true or false? Condensing Water Heaters are more efficient because their heat exchanger has more surface area than conventional heat exchangers. | TRUE                             | FALSE                              |                                    |   |        |
| 9  | PVC or PP pipe for venting can be used for which of the following types of water heaters?   | Condensing Water Heaters         | Condensing Boilers                 | Direct Contact                     | Heat Pump                               |        |
| 10 | Which of the following is a type of heat pump water heater?   | Electric-Source                  | Air-Source                         | Gas-Source                         | Ground-Source                           |        |
| 11 | Is the following statement true or false? Heat pump water heaters can be installed and used effectively in any climate, regardless of temperature.                          | TRUE                             | FALSE                              |                                    |   |        |
| 12 | Which of the following parts of a heat pump water heater is responsible for absorbing the heat?   | Condenser                        | Evaporator                         | Compressor                         | Expansion Valve                         |        |

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| 13 | Which of the following terms is a category of solar water heaters?   | Engaged                | Active              | Unengaged                     | Passive                           |
| 14 | Of the following parts listed, which are in a solar water heater system?   | Circulation System     | Compressor          | Backup Heater                 | Controller                        |
| 15 | Which components of a tank water heater ensures cold water is delivered to the bottom, allowing hot water to be drawn from the top.  | Drain Valve            | Heat Traps          | Dip Tube                      | Anode Rod:                        |
| 16 | What part of a water heater protects it from corrosion?  | Anode Rod              | Dip Tube            | Drain Cock                    | Anode Rod                         |
| 17 | What term is used for water connectors that reduce the flow of electricity related to galvanic corrosion, from the house piping to the water heater.                             | Dielectric Connections | Gravity Connections | Thermal Expansion Connections | Hot Water Circulation Connections |
| 18 | Is the following statement true or false?<br>For a solar water heater, tilt angle is the angle that a flat plate collector surface forms with the horizontal planes.             | TRUE                   | FALSE               |                               |                                   |
| 19 | Overall efficiency of a heat pump water heater is calculated by testing which of the following factors using DOE protocol?   | Tank Draw              | Recovery            | Standby                       | Temperature Stability             |
| 20 | What is the term for the flow channels or pipes that distribute the heat transfer liquid across the face of an absorber in a water heater?                                       | Risers                 | Nipple              | Irradiance                    | Headers                           |
| 21 | What is the name of a condition caused as a result of a conducting liquid making contact with two different metal that are not properly isolated physically and/or electrically. | Galvanic Corrosion     | Expansion Corrosion | Convection Occurrence         | Backdraft                         |
| 22 | What is the name of an assembly of listed semirigid or flexible tubing and fittings to carry fuel between a fuel-piping outlet and a fuel-burning appliance.                     | Flat Plate Connector   | Delta-T             | Appliance Conduit             | Appliance Fuel Connector          |
| 23 | Is the following statement true or false?<br>Thermal Capacity for solar water heaters is the quantity of heat needed to cool a collector to its operating temperature.           | TRUE                   | FALSE               |                               |                                   |
| 24 | Which of the following correctly states what is a Flue?  | Gas Tube               | Dip Tube            | Water Tube                    | Air Tube                          |
| 25 | The function of a draft diverter is which of the following?  | Liquify                | Heat Up             | Cool Down                     | Aerate                            |
| 26 | Is the following statement true or false?<br>A Piezo Switch is used to ignite a pilot light in a gas water heater.   | TRUE                   | FALSE               |                               |                                   |

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| 27 | The purpose of a pilot light is to ignite what part of a water heater?   | Heat Element                        | Heat Exchanger                                  | Tank  | Gas Burner                        |
| 28 | Which of the following parts actually heat the water?  | Upper Heating Element               | Lower Heating Element                           | Upper Thermostat                                  | Lower Thermostat                  |
| 29 | What is the name of a condition caused as a result of a conducting liquid making contact with two different metal that are not properly isolated physically and/or electrically. | Galvanic Corrosion                  | Expansion Corrosion                             | Convection Occurrence                             | Backdraft                         |
| 30 | Which of the parts listed is standard in both gas and electric tank water heaters?   | Cold Water Valve                    | Temperature & Pressure (T&P) Relief Valve       | Dip Tube  | Drain Valve                       |
| 31 | Is the following statement true or false? The Anti-Corrosion Anode Rod is a standard part used in tankless water heaters.  | TRUE                                | FALSE   |   |                                   |
| 32 | What part in a water heater prevents hot and cold water from mixing too quickly?   | Cold Water Inlet Valve              | Discharge Pipe                                  | Pilot Tube  | Dip Tube                          |
| 33 | Is the following statement true or false? Both gas and electric water heaters have the same thermostat part.   | TRUE                                | FALSE   |   |                                   |
| 34 | Which of the following parts detects whether a water heater's pilot light is lit?  | Thermostat                          | Temperature Sensor                              | Thermocouple                                      | Mixing Valve                      |
| 35 | What part in a water heater checks and adjusts water temperature when it leaves the heat exchanger?  | Hot Water Valve                     | Mixing Valve                                    | Cold Water Valve                                  | Control Valve                     |
| 36 | Which of the following types of water heaters uses a flow sensor to detect incoming cold water and signals heating components to turn on?  | Gas Tankless Water Heater           | Electric Tankless Water Heaters                 | Gas Tank Water Heaters                            | Electric Tank Water Heaters       |
| 37 | Which of the following are the two parts that bring in outside air into a water heater for combustion?   | TRUE                                | Flue Tube                                       | Air Intake  | Combustion Fan                    |
| 38 | Is the following statement true or false? A triac is an switch that controls electric heating elements.  | TRUE                                | FALSE   |   |                                   |
| 39 | Which of the following should be checked as part of a safety check?  | Temperature Setting                 | Inlet Connections                               | Gas Level   | Carbon Monoxide Detector          |
| 40 | What documents need to be read before start up of a water heater?  | Manufacturers Water Heater Warranty | Manufacturers Water Heater Specifications Sheet | Manufacturers Water Heater Operating Instructions | Manufacturers Water Heater Manual |
| 41 | When setting a water heaters temperature control what range is recommended and considered as safe for the hot water temperature?   | 180–200°F                           | 125–145°F                                       | 110–150°F   | 120–140°F                         |

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| 42 | Which of the following is the first step in starting up a gas water heater?  | Turn the gas knob to pilot            | Push down push down the red or black ignition button | Push down and hold the red pilot knob | Open the door/cover over the pilot light access |
| 43 | Is the following statement true or false?<br>To start an electric water heater, you simply make sure the electrical switch on the water heater is in the OFF position, and then turn it ON | TRUE                                  | FALSE  |                                       |   |
| 44 | How often is it recommended to flush a water   | 12 months                             | 4 months   | 6 months                              | 24 months                                       |
| 45 | What is the most important preventative maintenance step for a tankless water heater?  | Check for Leaks                       | Descale The Unit                                     | Temperature Check                     | Clean Drain                                     |
| 46 | Which of the following are steps to take when executing a water heater emergency shut down?  | Open Relief Valve on Hot Water Tank   | Turn Off the Gas or Electric Power Source            | Drain Out the Water Heater            | Turn Off the Water Supply                       |
| 47 | Is the following statement true or false?<br>When draining a water heater, you should wait 1 hour after the water heater is turned off before draining the tank.                           | TRUE                                  | FALSE  |                                       |   |
| 48 | Where do you attach a hose when draining a   | Drain Valve                           | Discharge Valve                                      | Control Valve                         | Pressure Valve                                  |
| 49 | If the water from a water heater is too hot, which of the following could have caused the problem?   | Broken Thermostat                     | Broken Heating Element                               | Wrong Temperature Setting             | Malfunctioning Heat Exchanger                   |
| 50 | Dirty or rusty colored water often indicates which of the following is a problem in a water heater?  | Magnesium                             | High Pressure  | Sulfur                                | Corrosion                                       |
| 51 | If a water heater has ignition failure where is the first place to check when troubleshooting?   | Gas Supply Line                       | Shut Off Valve                                       | Pilot Light                           | Gas Vent  |
| 52 | From the selection of valves provided, which are you required to install for water heater system?  | Gas Shut Off Valve                    | Temperature Valve                                    | Pressure Valve                        | Velocity Valve                                  |
| 53 | Which of the following materials is approved for ducts and vents?  | Acrylonitrile Butadiene Styrene (ABS) | Polyvinyl Chloride (PVC)                             | Copper                                | Galvanized Steel                                |
| 54 | Is the following statement true or false?<br>When you install a draft hood or barometric draft regulator, it should be located in an adjoining room with discharge piping.                 | TRUE                                  | FALSE  |                                       |   |
| 55 | If you install a catch pan for a water heater system that is made of galvanizes steel, how this does it need to be?  | 0.05" (1.27 mm)                       | 0.035" (.9 mm)                                       | 0.025" (0.635 mm)                     | 0.15" (3.81 mm)                                 |

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| 56 | If you decide to use a plastic catch pan for a water heater, what is the required flame spread index for that material?                               | 15                | 35                   | 50               | 25             |
| 57 | Which of the following do you install for gas-fired water heaters to prevent debris and sediment from entering the appliance and causing damage?      | Sediment Traps    | Drip Legs            | Drip Tees        | Drip Legs      |
| 58 | What is considered the safe temperature range for a water heater system?  | 100°F to 140°F    | 120°F to 160°F       | 120°F to 140°F   | 150°F to 170°F |
| 59 | Before adding more appliances to a gas piping system, what needs to be considered and checked before you proceed?                                     | Flow Rate         | Temperature          | Capacity         | Viscosity      |
| 60 | When you combine spaces on the same story, how many inches does the air opening need to be?   | 12"               | 6"                   | 8"               | 3"             |
| 61 | Is the following statement true or false? When installing combustion ducts, you can connect the upper and lower openings to a single duct.            | TRUE              | FALSE                |                  |                |
| 62 | Is the following statement true or false? Water heater can be installed in residential garages as long as it's not a living space of a dwelling unit. | TRUE              | FALSE                |                  |                |
| 63 | For water heaters you install in a garage, how far do burners and burner-ignition devices need to be above the floor?                                 | 6"                | 18"                  | 10"              | 20"            |
| 64 | For residential water heater system installations, what is the total amount of clearance you are required to create?                                  | 24"               | 12"                  | 45"              | 36"            |
| 65 | What are you required to install when a water heater is location in an area that is earthquake-prone?   | Anchor Ropes      | Water Heater Harness | Seismic Straps   | Unit Belt      |
| 66 | Is the following statement true or false? A shut off and check valve are not required on a water heater's cold water supply pipe.                     | TRUE              | FALSE                |                  |                |
| 67 | From the selections provided, which of the valves can be used on the cold water supply pipe to the water heater?                                      | Ball Valve        | Globe Valve          | Faucet Valve     | Gate Valve     |
| 68 | Which of the areas listed are an approved place for drainage pipe to drain?   | Utility Room Sink | Outside The Building | Indoor Catch Pan | Floor Drain    |

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| 69 | Is the following statement true or false?<br>Water discharge pipes must have an air gap<br>between the pipe and drain to prevent<br>backflow and Backsiphonage. | TRUE | FALSE |
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| 70 | How many water heaters can a single<br>discharge pipe serve? | Three | Two | One | Four |
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