

01	☐ A	☐ B	☐ C	☐ D	☐ E
02	☐ A	☐ B	☐ C	☐ D	☐ E
03	☐ A	☐ B	☐ C	☐ D	☐ E
04	☐ A	☐ B	☐ C	☐ D	☒ E
05	☐ A	☒ B	☐ C	☐ D	☐ E
06	☐ A	☐ B	☐ C	☒ D	☐ E
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16	☐ A	☐ B	☒ C	☐ D	☐ E
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27	☐ A	☐ B	☐ C	☐ D	☒ E
28	☐ A	☒ B	☐ C	☐ D	☐ E
29	☒ A	☐ B	☐ C	☐ D	☐ E
30	☐ A	☒ B	☐ C	☐ D	☐ E
31	☐ A	☐ B	☒ C	☐ D	☐ E
32	☐ A	☐ B	☐ C	☒ D	☐ E
33	☐ A	☒ B	☐ C	☐ D	☐ E
34	☐ A	☐ B	☒ C	☐ D	☐ E
35	☐ A	☐ B	☐ C	☐ D	☒ E
36	☐ A	☐ B	☐ C	☐ D	☒ E
37	☐ A	☐ B	☐ C	☐ D	☒ E
38	☒ A	☐ B	☐ C	☐ D	☐ E
39	☐ A	☐ B	☒ C	☐ D	☐ E

PRACTICE QUESTIONS

CONNECTICUT OCCUPATIONAL TRADES

HRX6U7L3

CT B3 Limited Gas/oil

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for CONNECTICUT OCCUPATIONAL TRADES **HRX6U7L3**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, **HRX6U7L3**
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

MULTIPLE CHOICE

During the initial startup and commissioning of an oil-fired furnace, which of the following checks must the technician perform before leaving the job site? (Choose two.)

- ☐ **A** Verify that the combustion chamber draft falls within the manufacturer's specified range using a draft gauge.
- ☒ **B** Measure the flue gas oxygen (O₂) percentage and compare it to the target value stated on the unit's rating plate.
- ☐ **C** Confirm that the barometric damper freely modulates with changes in stack temperature.
- ☐ **D** Inspect the oil tank vent for the proper screen size and unobstructed airflow.
- ☒ **E** Cycle the burner through a complete ON/OFF sequence to confirm that the flame sensor (cad cell) reliably breaks the circuit when the flame is extinguished.

ANSWER B - E

WHY Commissioning an oil-fired appliance requires verifying actual combustion quality (flue gas O₂ analyzed against the rating plate target) and proving the safety interlocks function correctly by cycling the burner and confirming the flame sensor interrupts the circuit on flame loss. Draft readings and vent screen checks are useful, but they are not the two primary commissioning checks tied to safe operation that the technician must sign off on before leaving the site.

QUESTION 2

MULTIPLE CHOICE

An oil-fired boiler is experiencing soot accumulation in the firebox and visible smoke at the vent connector. Which of the following are the most likely contributing causes? (Choose two.)

- ☒ **A** An undersized or restricted flue that prevents the proper draft from being established.
- ☒ **B** A clogged nozzle that is reducing the atomization of the fuel oil.
- ☐ **C** A cracked heat exchanger that is allowing combustion products to mix with the air stream.
- ☐ **D** An oversized barometric damper that is admitting too much dilution air.
- ☐ **E** A faulty low-water cutoff that is cycling the burner off during operation.

ANSWER A • B

WHY Soot and visible smoke are classic symptoms of incomplete combustion caused by insufficient draft (undersized/restricted flue) or poor fuel atomization (clogged nozzle). A cracked heat exchanger would not typically produce soot, an oversized barometric damper causes dilution but not soot, and a low-water cutoff issue would shut the burner down rather than cause soot.

QUESTION 3

TRUE FALSE

A Connecticut B-3 Limited Oil Heating Contractor is permitted to install a complete oil-fired warm air furnace system, including the associated oil supply tank, oil lines, and electrical wiring, without holding a separate P-1 or P-2 license.

- ☒ **A** True
- ☐ **B** False

ANSWER A

WHY True. The B-3 Limited Oil Heating Contractor classification authorizes the holder to install, service, and repair oil-burning equipment and the directly associated fuel delivery and electrical work. A separate electrical license is not required for the wiring directly associated with the oil heating equipment itself.

QUESTION 4 SINGLE CHOICE

On a residential oil-fired gun-type (pressure atomizing) burner, the component responsible for atomizing the fuel oil into a fine spray before ignition is the:

- ☐ A ignition transformer
- ☐ B fuel pump bleeder valve
- ☒ C nozzle
- ☐ D cad cell flame sensor

ANSWER C

WHY In a pressure-atomizing gun-type burner, fuel oil is forced under high pressure through the precision orifice of the nozzle, where it is sheared into a fine conical spray suitable for combustion. The ignition transformer provides the spark, the bleeder valve removes air from the oil line, and the cad cell senses flame — but only the nozzle actually atomizes the fuel.

QUESTION 5 SINGLE CHOICE

An aboveground 275-gallon indoor oil storage tank is being replaced in a residential basement. Per applicable code, what is the minimum required clearance between the tank and any burner or other source of ignition?

- ☐ A 12 inches
- ☐ B 18 inches
- ☒ C 24 inches
- ☐ D 36 inches

ANSWER C

WHY Under the International Mechanical Code (Section 1305, oil tanks) and the Connecticut State Fire Prevention Code provisions for oil-burning equipment, indoor oil tanks must be located with a minimum clearance of 24 inches from any source of ignition, including burners and pilot flames. Larger distances apply only in specific obstruction or fire-resistance scenarios.

QUESTION 6

SINGLE CHOICE

During an annual service call on a residential oil-fired boiler, the technician should replace the nozzle and:

- ☐ A drain and flush the heat exchanger with a chemical descaling solution
- ☒ B clean and inspect the electrodes, and check the electrode gap against the manufacturer's specification
- ☐ C recharge the combustion chamber refractory lining with new castable cement
- ☐ D replace the expansion tank bladder with a new pre-charged unit

ANSWER B

WHY Standard annual oil-burner service includes nozzle replacement along with cleaning and gapping the ignition electrodes to the manufacturer's specification. Heat exchanger descaling, refractory replacement, and expansion tank service are not part of a routine annual burner tune-up.

QUESTION 7

SINGLE CHOICE

Before loosening any oil line fitting on a residential oil-fired burner, the technician must first:

- ☒ A open the bleed valve on the fuel pump and allow pump pressure to be relieved into a suitable container
- ☐ B increase the thermostat setting to call for heat and force the burner to run
- ☐ C pour a small amount of kerosene into the firebox to displace residual oil
- ☐ D cycle the burner several times using the manual mode switch

ANSWER A

WHY Oil lines on a gun-type burner operate under pump pressure (typically 100–300 psi). Before loosening any fitting, the technician must shut off the burner and open the pump bleed valve to relieve residual line pressure safely into an approved container. The other options either pressurize the system further or are unrelated to depressurization.

QUESTION 8

SINGLE CHOICE

Per NFPA 31, when an oil-fired appliance is installed in a confined space (such as a small utility room), the room must be provided with two permanent openings to adjoining spaces. The purpose of these openings is to:

- ☐ A provide a means of access for service technicians
- ☒ B provide combustion air to support proper burner operation
- ☐ C serve as a means of emergency egress in case of a fire
- ☐ D allow the oil supply lines to be routed through the structure

ANSWER B

WHY NFPA 31 (Standard for the Installation of Oil-Burning Equipment) requires combustion air openings in confined spaces where oil-burning equipment is installed, with sizing based on the appliance input and the method of supplying the air (from inside or outside the building). The openings are not for egress, service access, or piping.

QUESTION 9

SINGLE CHOICE

The function of the cad cell (cadmium sulfide flame sensor) in an oil-fired burner primary control circuit is to:

- ☐ A regulate the firing rate of the burner as the call for heat changes
- ☒ B detect the presence of a flame and prove ignition has occurred
- ☐ C limit the maximum stack temperature of the appliance
- ☐ D shut the system down if the oil tank runs empty

ANSWER B

WHY The cad cell is a photoconductive flame sensor. When light from the burning oil flame strikes the cell, its resistance drops, allowing the primary control to confirm that a flame has been established and to keep the burner running. Loss of flame causes resistance to rise, opening the circuit and locking out the burner — the core safety function.