

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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08	☐ A	☐ B	☐ C	☐ D	☒ E
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13	☒ A	☐ B	☐ C	☐ D	☐ E

14	☐ A	☐ B	☒ C	☐ D	☐ E
15	☐ A	☐ B	☐ C	☐ D	☒ E
16	☐ A	☒ B	☐ C	☐ D	☐ E
17	☐ A	☐ B	☒ C	☐ D	☐ E
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27	☒ A	☐ B	☐ C	☐ D	☐ E
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30	☒ A	☐ B	☐ C	☐ D	☐ E
31	☒ A	☐ B	☐ C	☐ D	☐ E
32	☐ A	☐ B	☐ C	☒ D	☐ E
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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

Technical Standards and Safety Authority (TSSA)

ICENG

Internal Combustion Alternate Fuel Technician Natural Gas

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Technical Standards and Safety Authority (TSSA) ICENG , 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, ICENG
- the question number
- the email address on your order

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

QUESTION 1

SINGLE CHOICE

Which property of natural gas makes it lighter than air?

- ☒ **A** Its specific gravity is less than 1.0
- ☐ **B** Its heating value is measured in MJ/m³
- ☐ **C** It is delivered at low pressure
- ☐ **D** It contains primarily propane and butane

ANSWER A

WHY Natural gas has a specific gravity of approximately 0.6, which is less than 1.0 (the specific gravity of air). This means it is lighter than air and will rise and dissipate when released in open, well-ventilated areas. Options B, C, and D describe other characteristics but do not explain why natural gas is lighter than air.

QUESTION 2

SINGLE CHOICE

According to the B149.1 code, what is the minimum required clearance between a natural gas appliance vent terminal and a window that can be opened?

- ☐ **A** 150 mm (6 in)
- ☐ **B** 300 mm (12 in)
- ☒ **C** 1 m (3 ft)
- ☐ **D** 2 m (6 ft)

ANSWER C

WHY The B149.1 code specifies a minimum clearance of 1 m (3 ft) between a gas appliance vent terminal and any window or door that can be opened. This clearance prevents combustion products from re-entering the building through openings. Options A and B are too small, and option D exceeds the standard requirement.

QUESTION 3 SINGLE CHOICE

When performing a leak test on a residential natural gas piping system at operating pressure, which method is required by the B149.1 code?

- ☒ **A** Soap solution test on all joints and connections
- ☐ **B** Pressure decay test over a 10-minute period
- ☐ **C** Use of an ultrasonic leak detector only
- ☐ **D** Replacement of all gasketed fittings

ANSWER A

WHY The B149.1 code requires a soap solution (or equivalent bubble-forming solution) test on all joints, connections, and fittings when performing a leak test on natural gas piping. Any visible bubbles indicate a leak that must be repaired. While ultrasonic detectors are useful tools, they are not the prescribed method for the standard leak test required by the code.

QUESTION 4 SINGLE CHOICE

What is the primary function of the appliance pressure regulator on a natural gas appliance?

- ☐ **A** To increase the incoming line pressure to the appliance
- ☒ **B** To reduce and maintain a consistent manifold pressure to the burner
- ☐ **C** To shut off gas flow in the event of a power outage
- ☐ **D** To convert natural gas to propane for combustion

ANSWER B

WHY The appliance pressure regulator reduces the incoming line pressure (typically 1.5 to 7 inches water column) down to a stable manifold pressure suitable for the burner (typically 3.5 to 10 inches water column depending on appliance). It maintains consistent pressure despite variations in inlet pressure or demand. Regulators do not increase pressure, do not function as safety shutoffs, and do not convert fuel types.

QUESTION 5

SINGLE CHOICE

What is the primary cause of yellow tipping on a natural gas burner flame?

- ☐ A Excessive primary air mixing with the gas
- ☒ B Insufficient primary air causing incomplete combustion
- ☐ C Too much gas pressure at the manifold
- ☐ D A clogged thermocouple

ANSWER B

WHY Yellow tipping (or yellow flame tips) on a natural gas burner indicates insufficient primary air, which leads to incomplete combustion and the production of soot and carbon monoxide. A properly adjusted burner should display a sharp blue flame with a distinct inner cone. Excess air produces a soft blue flame, but yellow tips specifically signal an air-starved condition.

QUESTION 6

SINGLE CHOICE

Which symptom is most commonly associated with low-level carbon monoxide exposure in a residential setting?

- ☐ A Severe burns on exposed skin
- ☒ B Headache, dizziness, and nausea
- ☐ C Sudden loss of hearing
- ☐ D High fever and chills

ANSWER B

WHY Carbon monoxide binds with hemoglobin in the blood, reducing oxygen delivery to tissues. Low-level exposure typically produces flu-like symptoms including headache, dizziness, nausea, and fatigue. CO does not cause burns or fever, and hearing loss is not a typical symptom. Because these symptoms resemble common illnesses, CO poisoning is often called the 'silent killer.'

QUESTION 7 SINGLE CHOICE

When sizing a natural gas piping system using the B149.1 method, what factor primarily determines the required pipe diameter?

- ☐ A The color of the pipe material
- ☒ B The total connected load and the length of the pipe run
- ☐ C The number of elbows in the system
- ☐ D The age of the building

ANSWER B

WHY Pipe sizing under B149.1 is determined by the total connected load (in BTU/h or cubic meters per hour) and the equivalent length of the pipe run (including allowances for fittings). Pressure drop limitations must be respected. Pipe color is a material identification convention, elbow counts are accounted for through equivalent length values, and building age is not a sizing factor.

QUESTION 8 SINGLE CHOICE

Why is it necessary to provide adequate combustion air to a natural gas appliance?

- ☐ A To cool the burner before ignition
- ☒ B To ensure complete combustion and prevent production of carbon monoxide
- ☐ C To reduce the noise level of the burner
- ☐ D To increase the heating efficiency above 100%

ANSWER B

WHY Adequate combustion air is required to ensure that the natural gas fully oxidizes during combustion. Without sufficient oxygen, incomplete combustion occurs, producing dangerous carbon monoxide and soot. Combustion air is not for cooling, sound reduction, or boosting efficiency beyond 100% (which is physically impossible).

QUESTION 9

MULTIPLE CHOICE

Which of the following items of personal protective equipment (PPE) should a technician wear when working on a natural gas piping system? (Choose two.)

- ☒ **A** Safety glasses or goggles
- ☒ **B** Leather work gloves
- ☐ **C** A self-contained breathing apparatus (SCBA) for routine leak checks
- ☐ **D** Hearing protection only when working near loud equipment

ANSWER **A** • **B**

WHY Safety glasses or goggles protect the eyes from debris, pipe chips, and any pressurized gas or fluid release, while leather work gloves protect the hands from cuts, abrasions, and hot or sharp surfaces. An SCBA is required for working in oxygen-deficient atmospheres or where high concentrations of gas may be present, but is not standard PPE for routine leak checks. Hearing protection is situational, not general PPE for natural gas work.