

**AirCare Technician Exam Sample Questions  
2008**

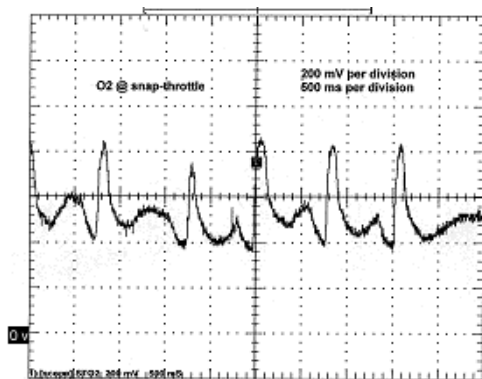
1. A 1988 vehicle failed for HC on the idle test with the following readings:

Emission	Engine-out	Tailpipe
HC	700 ppm	450 ppm
CO	.22%	.10%
O <sub>2</sub>	1.9%	1.2%
CO <sub>2</sub>	11.33%	12.60%

What is the most likely cause of the HC failure?

- a) O<sub>2</sub> sensor fixed at 0.17 volt
- b) Plugged injectors
- c) Defective PCM
- d) Intermittent problems with the coolant temp sensor

2. The following O<sub>2</sub> sensor waveform is taken while performing a series of snap-throttle tests on a 1993 vehicle with a 2.2 litre port fuel injected engine.



What does this waveform indicate?

- a) Normal O<sub>2</sub> sensor range and response with a possible fuel system problem causing mixture to stay rich on deceleration
- b) Limited O<sub>2</sub> sensor range and response requiring O<sub>2</sub> sensor replacement
- c) Normal O<sub>2</sub> sensor range and response
- d) None of the above

3. A 1987 vehicle with conventional electronic distributor ignition is requiring 30KV plug firing voltage on all cylinders. The most likely cause is:
- High HC at idle
  - Coil wire open circuit
  - Carbon tracking in the distributor cap
  - Rich idle mixture adjustment
4. A 1990 passenger car equipped with a 3.0 litre engine, port fuel injection, heated O<sub>2</sub> sensor and three-way catalyst fails for NO<sub>x</sub> on the driving test with the following readings:

Emission	Reading
HC	85 ppm
CO	.52%
NO <sub>x</sub>	1800 ppm

You perform diagnostics on the vehicle with the following results:

- Timing at specs
- Engine temperature is normal
- O<sub>2</sub> sensor voltage at 2500 rpm is switching between 175 mV and 825mV
- O<sub>2</sub> sensor range is 50mV to 950mV
- Pre catalyst readings at 2500 rpm are:

Emission	Reading
HC	90 ppm
CO	.55%
O <sub>2</sub>	.62%
CO <sub>2</sub>	13.9%

Based on this information you should:

- Replace the O<sub>2</sub> sensor
- Inform the customer the vehicle is not EGR equipped and may not pass for NO<sub>x</sub> emissions
- Replace the catalytic converter
- Perform a combustion chamber cleaning

5. During your diagnosis of an idle HC failure you located one cylinder with low compression and two open spark plug wires. The vehicle owner will not authorize repairs over the repair cost limit. What is the correct action to take?
- Inform the customer you must do internal engine repairs or you cannot complete the repair data form
  - Replace the two open plug wires and estimate the cost to complete the repairs
  - Do no further repairs and complete the repair data form
  - Retard the ignition timing until HC is within specifications
6. A 1993 passenger car equipped with a 3.5 litre engine, port fuel injection, heated O2 sensor and three-way catalyst fails for CO on the IM240 transient test with the following readings:

Emission	IM240 Readings
HC	0.33 g/km
CO	13.92 g/km
NO <sub>x</sub>	0.75 g/km

You perform diagnostics on the vehicle with the following results:

- Timing at specs
- Engine temperature normal
- O2 sensor voltage at 2500 rpm is switching between 200 mv and 500mv
- O2 sensor range is from 50mv to 600mv
- Pre-catalyst readings at 2500 rpm are:

Emission	2500 rpm Readings
HC	75 ppm
CO	1.30 %
O <sub>2</sub>	.44%
CO <sub>2</sub>	12.3%

Based on this information you would:

- a) Replace the catalytic converter
- b) Recommend that the vehicle owner fill up on an oxygenated fuel and have it tested again
- c) Replace the O2 sensor
- d) Perform a fuel injector cleaning

7. A 1994 vehicle has failed an IM240 test with very high CO readings. You insert the gas-analyzer probe in the tailpipe and observe normal readings.

The next diagnostic step should be to:

- a) Connect a scanner, check for any codes stored and analyze the data-stream
- b) Replace the O2 sensor
- c) Ask the customer if the vehicle was warmed up before the test
- d) Advise the customer that the vehicle looks OK on your analyser and that they should have AirCare retest the vehicle

8. What is the likely result when a vehicle's ignition timing is advanced 25 degrees above manufacturer's specifications?

- a) Increased CO<sub>2</sub> emissions at idle and increased NO<sub>x</sub> at load
- b) Increase in all emissions at idle and increased NO<sub>x</sub> at load
- c) Increased CO emissions at idle and increased NO<sub>x</sub> at load
- d) Increased HC emissions at idle and increased NO<sub>x</sub> at load

9. An 1990 vehicle equipped with a 1.8 litre engine, port fuel injection, closed loop fuel control, TWC but not EGR has failed the AirCare inspection with the following results:

Emission	Idle Reading	ASM Reading
HC	705 ppm	89 ppm
CO	0.05%	0.03%
NO <sub>x</sub>	n/a	1900 ppm

Which of the following may cause both HC and NO<sub>x</sub> problems?

- a) Defective catalytic converter
- b) Plugged PCV system
- c) Intermittent misfire
- d) None of the above

10. What can cause the MIL to flash on an OBD II-equipped vehicle?

- a) A type "B" misfire
- b) Catalytic converter malfunction
- c) A type "A" misfire
- d) O2S malfunction

Answers:

- 1. -- b
- 2. -- b
- 3. -- b
- 4. -- c
- 5. -- b
- 6. -- c
- 7. -- a
- 8. -- d
- 9. -- c
- 10.-- c