PRACTICE EXAM 3: A7 SIMULATION — HEATING AND AIR CONDITIONING

1. The proper purpose of an in-car temperature sensor is to:

A. Apply compressed air to the system

B. Measure cabin temperature for use by the climate control module to adjust system output

C. Replace the sensor as a precaution

D. Filter contaminants from the system

2. The proper procedure for diagnosing an in-car temperature sensor fault is to:

A. Apply compressed air to the sensor

B. Replace the sensor as a precaution

C. Visually inspect for visible damage only

D. Verify the customer concern, retrieve stored DTCs, monitor scan tool data, compare to actual cabin temperature

3. A vehicle's climate control system shows scan tool data with the in-car temperature sensor reporting 32 degrees Fahrenheit when the actual cabin temperature is 75 degrees Fahrenheit. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the climate control module as a precaution

C. A failed in-car temperature sensor or fault in the sensor wiring

D. Replace the brake fluid as the only step

4. The proper purpose of an ambient temperature sensor is to:

A. Apply compressed air to the system

B. Replace the sensor as a precaution

C. Filter contaminants from the system

D. Measure outside air temperature for use by the climate control module to adjust system output

5. A vehicle's climate control system shows scan tool data with the ambient temperature sensor reporting an inaccurate value compared to actual outside temperature. The MOST likely cause is:

A. A failed ambient temperature sensor, sensor location issue (heat soak), or fault in the wiring

B. Apply compressed air to the system

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

6. The proper purpose of a sun load sensor is to:

A. Apply compressed air to the system

B. Replace the sensor as a precaution

C. Filter contaminants from the system

D. Measure solar radiation entering the cabin for use by the climate control module to adjust cooling

7. A vehicle's climate control system shows scan tool data with the sun load sensor reporting incorrect values. The MOST likely cause is:

A. Apply compressed air to the sensor

B. A failed sun load sensor, contamination of the sensor area, or fault in the sensor wiring

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

8. The proper purpose of an evaporator temperature sensor is to:

A. Apply compressed air to the system

B. Replace the sensor as a precaution

C. Measure evaporator surface temperature to control compressor cycling and prevent evaporator freezing

D. Filter contaminants from the system

9. A vehicle's climate control system shows scan tool data with the evaporator temperature sensor reporting an extremely low value. The MOST likely cause is:

A. A failed evaporator temperature sensor, fault in sensor wiring, or actual evaporator freezing condition

B. Apply compressed air to the sensor

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

10. The proper purpose of a humidity sensor in a climate control system is to:

A. Apply compressed air to the system

B. Replace the sensor as a precaution

C. Filter contaminants from the system

D. Measure cabin humidity to optimize defrost operation and dehumidification function

11. A vehicle equipped with dual-zone climate control has been brought in with a complaint that one zone temperature is incorrect. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the dual-zone module as a precaution

C. A failed blend door actuator for that zone, fault in zone control wiring, or fault in the dual-zone HVAC module

D. Replace the brake fluid as the only step

12. The proper procedure for diagnosing dual-zone climate control faults is to:

A. Apply compressed air to the system

B. Verify the customer concern, retrieve stored DTCs, check each zone's actuator operation, and identify the specific cause

C. Replace the dual-zone module as the most direct repair

D. Replace the brake fluid as the only step

13. A vehicle equipped with tri-zone climate control has been brought in for diagnosis. The proper purpose of tri-zone climate control is to:

A. Apply compressed air to the system

B. Replace the system as a precaution

C. Replace the refrigerant as a precaution

D. Provide independent temperature control for three zones (typically driver, passenger, and rear)

14. The proper procedure for diagnosing tri-zone climate control faults is to:

A. Verify the customer concern, retrieve stored DTCs, check each zone's actuator operation, and identify the specific cause

B. Apply compressed air to the system

C. Replace the tri-zone module as a precaution

D. Replace the brake fluid as the only step

15. A vehicle's climate control system has been brought in with a complaint of erratic operation. Scan tool data shows network communication faults between the climate control module and other vehicle modules. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the climate control module as a precaution

C. A CAN bus communication fault, network wiring issue, or fault in the climate control module

D. Replace the brake fluid as the only step

16. The proper procedure for diagnosing climate control network faults is to:

A. Apply compressed air to the system

B. Use a scan tool to verify network communication, check for network DTCs, inspect bus wiring, and identify the cause

C. Replace the climate control module as a precaution

D. Visually inspect for visible damage only

17. A vehicle equipped with heated seats has been brought in with a complaint that the heated seats do not function from the climate control. The MOST likely cause is:

A. A failed heated seat module, fault in the seat heater controls, fault in the climate control integration, or DTC in the affected modules

B. Apply compressed air to the seats

C. Replace the heated seat as a precaution

D. Replace the brake fluid as the only step

18. The proper procedure for diagnosing heated seat integration faults is to:

A. Apply compressed air to the seats

B. Replace the seat heater as a precaution

C. Replace the climate control module as a precaution

D. Verify the customer concern, retrieve stored DTCs, monitor scan tool data, verify seat heater operation, and identify the cause

19. A vehicle equipped with cooled (ventilated) seats has been brought in with a complaint that the cooled seats do not function. The MOST likely cause is:

A. Apply compressed air to the seats

B. Replace the seat fan as a precaution

C. A failed seat fan, fault in the seat cooling control, fault in the climate control integration, or DTC in the affected modules

D. Replace the brake fluid as the only step

20. The proper procedure for diagnosing cooled seat faults is to:

A. Apply compressed air to the seats

B. Verify the customer concern, retrieve stored DTCs, verify fan operation, verify control module operation, and identify the cause

C. Replace the cooled seat system as a precaution

D. Replace the brake fluid as the only step

21. A vehicle equipped with heated steering wheel has been brought in with a complaint that the heated steering wheel does not function. The MOST likely cause is:

A. Apply compressed air to the steering wheel

B. Replace the steering wheel as a precaution

C. Replace the brake fluid as the only step

D. A failed heating element, fault in the steering wheel heater control, fault in the integration with climate control, or fault in the slip ring connection

22. The proper procedure for diagnosing heated steering wheel faults is to:

A. Verify the customer concern, retrieve stored DTCs, verify the heating element resistance, verify control module operation, and identify the cause

B. Apply compressed air to the steering wheel

C. Replace the steering wheel as a precaution

D. Replace the brake fluid as the only step

23. A vehicle equipped with heated windshield has been brought in for diagnosis. The proper purpose of a heated windshield is to:

A. Apply compressed air to the windshield

B. Use embedded heating elements to clear ice and condensation from the windshield

C. Replace the windshield as a precaution

D. Filter contaminants from the windshield

24. The proper procedure for diagnosing heated windshield faults is to:

A. Apply compressed air to the windshield

B. Replace the windshield as a precaution

C. Replace the brake fluid as the only step

D. Verify the customer concern, retrieve stored DTCs, verify proper voltage at the windshield element, verify wiring, and identify the cause

25. A vehicle's climate control module has been brought in for replacement. The proper procedure for replacement is to:

A. Apply compressed air to the module

B. Replace the module as a precaution

C. Replace the module with the manufacturer-specified part, perform required programming and configuration, clear DTCs, and verify proper operation

D. Replace the brake fluid as the only step

26. The proper procedure for climate control module reprogramming is to:

A. Use the manufacturer-specified scan tool, follow the manufacturer's procedure, ensure stable battery voltage, and verify successful programming

B. Apply compressed air to the module

C. Replace the module as a precaution

D. Visually inspect for visible damage only

27. A vehicle's climate control module reprogramming has failed. The MOST likely cause is:

A. Apply compressed air to the module

B. Replace the module as a precaution

C. Battery voltage drop during programming, scan tool communication issue, or improper procedure

D. Replace the brake fluid as the only step

28. The proper procedure for identifying when climate control module reprogramming is required is to:

A. Apply compressed air to the system

B. Reference manufacturer technical service bulletins (TSBs) and DTCs that indicate software-related faults

C. Replace the module as a precaution

D. Replace the brake fluid as the only step

29. A vehicle has been brought in with a complaint of climate control issues that began after a battery replacement. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the climate control module as a precaution

C. Replace the brake fluid as the only step

D. Calibration loss requiring relearn (blend door actuators, mode door actuators, climate control module)

30. The proper procedure for performing climate control relearn after battery replacement is to:

A. Identify modules and actuators requiring relearn, perform each manufacturer-specified procedure, and verify proper operation

B. Apply compressed air to the system

C. Replace the modules as a precaution

D. Replace the brake fluid as the only step

31. A vehicle has been brought in with a complaint that the A/C system commands maximum cooling but the actual cooling is reduced. Scan tool data shows the compressor is commanded on, but variable displacement is being limited. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the compressor as a precaution

C. Replace the climate control module as a precaution

D. A protection signal limiting displacement (high-pressure protection, low refrigerant, or temperature protection)

32. The proper procedure for diagnosing variable displacement limitation is to:

A. Apply compressed air to the system

B. Verify the customer concern, retrieve stored DTCs, monitor scan tool data for protection conditions, and identify the specific cause

C. Replace the compressor as a precaution

D. Replace the brake fluid as the only step

33. A vehicle has been brought in with a complaint that the climate control module is unresponsive to user inputs. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the climate control module as a precaution

C. A failed climate control module, fault in the module power or ground, fault in the user interface, or network communication fault

D. Replace the brake fluid as the only step

34. The proper procedure for diagnosing unresponsive climate control module is to:

A. Verify the customer concern, retrieve stored DTCs, verify module power and ground, monitor scan tool data, and identify the specific cause

B. Apply compressed air to the system

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

35. A vehicle has been brought in with a complaint of intermittent climate control issues. Scan tool data is normal during the visit. The MOST appropriate diagnostic action is:

A. Apply compressed air to the system

B. Replace the climate control module as a precaution

C. Use scan tool data recorders, monitor for the symptom, perform wiggle testing, and capture data when the symptom occurs

D. Replace the brake fluid as the only step

36. The proper procedure for capturing intermittent climate control fault data is to:

A. Apply compressed air to the system

B. Use scan tool data recorders, oscilloscope monitoring, or freeze frame data to capture conditions when the symptom occurs

C. Replace the climate control module as a precaution

D. Visually inspect for visible damage only

37. A vehicle equipped with automatic temperature control has been brought in with a complaint that the system runs at an incorrect temperature setpoint. The MOST likely cause is:

A. A failed sensor providing input to the system, fault in the climate control module, or fault in the actuator response

B. Apply compressed air to the system

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

38. The proper procedure for diagnosing automatic temperature control faults is to:

A. Apply compressed air to the system

B. Replace the climate control module as the most direct repair

C. Verify the customer concern, retrieve stored DTCs, monitor scan tool data for sensor inputs and actuator commands, and identify the cause

D. Replace the brake fluid as the only step

39. A vehicle's automatic climate control has been brought in with a complaint that the system runs at full cooling regardless of setpoint. The MOST likely cause is:

A. Apply compressed air to the system

B. A failed in-car temperature sensor reporting incorrect (high) values, causing the system to run full cooling

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

40. The proper procedure for diagnosing automatic climate control sensor faults is to:

A. Apply compressed air to the system

B. Replace the sensor as a precaution

C. Replace the climate control module as a precaution

D. Verify each sensor input through scan tool monitoring, compare to actual conditions, and identify any sensor reporting incorrect values

41. A vehicle equipped with rear defroster has been brought in with a complaint that the rear defroster timer does not operate properly. The MOST likely cause is:

A. A failed rear defroster timer, fault in the timer relay, or fault in the climate control timer function

B. Apply compressed air to the system

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

42. The proper procedure for diagnosing rear defroster timer faults is to:

A. Apply compressed air to the system

B. Verify the customer concern, verify timer operation, verify the time-out function, and identify the cause

C. Replace the climate control module as a precaution

D. Replace the brake fluid as the only step

43. A vehicle has been brought in with a complaint that the climate control display shows incorrect information (icons, temperature, mode). The MOST likely cause is:

A. Apply compressed air to the display

B. Replace the climate control module as a precaution

C. A failed climate control display, fault in the climate control module, or fault in the network communication

D. Replace the brake fluid as the only step

44. The proper procedure for diagnosing climate control display faults is to:

A. Apply compressed air to the display

B. Verify the customer concern, retrieve stored DTCs, verify scan tool data matches display, and identify the cause

C. Replace the display as a precaution

D. Replace the brake fluid as the only step

45. A vehicle has been brought in with a complaint of audio system issues during A/C operation only. The MOST likely cause is:

A. Electromagnetic interference (EMI) from the compressor clutch or HVAC components affecting the audio system

B. Apply compressed air to the system

C. Replace the audio system as a precaution

D. Replace the brake fluid as the only step

46. The proper procedure for diagnosing EMI affecting audio during A/C operation is to:

A. Apply compressed air to the system

B. Replace the affected systems as a precaution

C. Replace the brake fluid as the only step

D. Identify the EMI source, address the routing or shielding, verify proper grounding, and verify resolution

47. A vehicle has been brought in with a complaint of A/C performance issues only at high engine RPM. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the compressor as a precaution

C. Belt slippage at high RPM, marginal compressor operation under high load, or compressor protection mode at high pressures

D. Replace the brake fluid as the only step

48. The proper procedure for diagnosing speed-dependent A/C issues is to:

A. Apply compressed air to the system

B. Verify the symptom under matching conditions, monitor system pressures and operation, and identify the specific cause

C. Replace the compressor as a precaution

D. Replace the brake fluid as the only step

49. A vehicle has been brought in with a complaint of A/C performance issues only when the engine is hot. The MOST likely cause is:

A. Apply compressed air to the system

B. Replace the compressor as a precaution

C. Replace the climate control module as a precaution

D. A heat-sensitive issue (engine cooling fan operation, condenser airflow at high temps, or component sensitivity to engine heat)

50. The proper procedure for diagnosing heat-sensitive A/C issues is to:

A. Verify the symptom under matching heat conditions, monitor system operation, and identify the specific cause

B. Apply compressed air to the system

C. Replace the compressor as a precaution

D. Replace the brake fluid as the only step

PRACTICE EXAM 3: A7 SIMULATION — ANSWER KEY, EXPLANATIONS, AND TASK REMEDIATION

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1. B — Measure cabin temperature for use by the climate control module to adjust system output. The in-car temperature sensor provides cabin temperature feedback. The climate control module uses this input to adjust system output to maintain the setpoint. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

2. D — Verify the customer concern, retrieve stored DTCs, monitor scan tool data, compare to actual cabin temperature. Sensor diagnosis requires comparison of reported value to actual condition. Scan tool monitoring and direct measurement together reveal sensor accuracy. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

3. C — A failed in-car temperature sensor or fault in the sensor wiring. A 32-degree reading with 75-degree actual cabin temperature indicates sensor failure or wiring fault. The sensor is reporting incorrect values. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

4. D — Measure outside air temperature for use by the climate control module to adjust system output. The ambient temperature sensor provides outside air temperature feedback. The climate control module uses this input for system optimization. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

5. A — A failed ambient temperature sensor, sensor location issue (heat soak), or fault in the wiring. Inaccurate ambient sensor readings have multiple potential causes. Heat soak from sun or engine heat can affect readings even when the sensor is functional. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

6. D — Measure solar radiation entering the cabin for use by the climate control module to adjust cooling. The sun load sensor provides solar radiation feedback. The climate control module uses this input to compensate for sun load. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

7. B — A failed sun load sensor, contamination of the sensor area, or fault in the sensor wiring. Sun load sensor faults have multiple potential causes. Each cause produces incorrect sensor readings. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

8. C — Measure evaporator surface temperature to control compressor cycling and prevent evaporator freezing. The evaporator temperature sensor provides evaporator condition feedback. It supports compressor control to prevent freezing. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

9. A — A failed evaporator temperature sensor, fault in sensor wiring, or actual evaporator freezing condition. Extremely low evaporator temperature readings have multiple potential causes. The reading may be accurate (icing) or false (sensor fault). *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

10. D — Measure cabin humidity to optimize defrost operation and dehumidification function. The humidity sensor enables advanced climate control features. It supports proper defrost and dehumidification operation. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

11. C — A failed blend door actuator for that zone, fault in zone control wiring, or fault in the dual-zone HVAC module. Single zone failure isolates to that zone's specific components. Each component contributes to potential causes. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

12. B — Verify the customer concern, retrieve stored DTCs, check each zone's actuator operation, and identify the specific cause. Dual-zone diagnosis requires verification of each zone's components. Each zone has independent actuators. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

13. D — Provide independent temperature control for three zones (typically driver, passenger, and rear). Tri-zone climate control extends the multi-zone concept. Each zone has independent control for occupant comfort. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

14. A — Verify the customer concern, retrieve stored DTCs, check each zone's actuator operation, and identify the specific cause. Tri-zone diagnosis requires verification of each zone's components. Each zone has independent actuators. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

15. C — A CAN bus communication fault, network wiring issue, or fault in the climate control module. Network communication faults isolate to the network or modules. Each component contributes to potential causes. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

16. B — Use a scan tool to verify network communication, check for network DTCs, inspect bus wiring, and identify the cause. Network diagnosis requires scan tool integration and physical inspection. Each step provides different diagnostic information. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

17. A — A failed heated seat module, fault in the seat heater controls, fault in the climate control integration, or DTC in the affected modules. Heated seat integration failure has multiple potential causes. Each component contributes to system function. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

18. D — Verify the customer concern, retrieve stored DTCs, monitor scan tool data, verify seat heater operation, and identify the cause. Heated seat diagnosis requires comprehensive systematic approach. Each step provides different diagnostic information. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

19. C — A failed seat fan, fault in the seat cooling control, fault in the climate control integration, or DTC in the affected modules. Cooled seat failure has multiple potential causes. Each component contributes to system function. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

20. B — Verify the customer concern, retrieve stored DTCs, verify fan operation, verify control module operation, and identify the cause. Cooled seat diagnosis requires comprehensive systematic approach. Each component must be evaluated. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

21. D — A failed heating element, fault in the steering wheel heater control, fault in the integration with climate control, or fault in the slip ring connection. Heated steering wheel failure has multiple potential causes. The slip ring is unique to this application. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

22. A — Verify the customer concern, retrieve stored DTCs, verify the heating element resistance, verify control module operation, and identify the cause. Heated steering wheel diagnosis requires comprehensive systematic approach including element resistance. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

23. B — Use embedded heating elements to clear ice and condensation from the windshield. Heated windshield uses embedded elements for direct heat application. This complements the standard defroster system. *ASE Task Reference: A7 Domain C — Heating, Ventilation, Engine Cooling, and A/C Air Distribution. Review subsection 7.3.*

24. D — Verify the customer concern, retrieve stored DTCs, verify proper voltage at the windshield element, verify wiring, and identify the cause. Heated windshield diagnosis requires comprehensive systematic approach. Each step provides different diagnostic information. *ASE Task Reference: A7 Domain C — Heating, Ventilation, Engine Cooling, and A/C Air Distribution. Review subsection 7.3.*

25. C — Replace the module with the manufacturer-specified part, perform required programming and configuration, clear DTCs, and verify proper operation. Climate control module replacement requires programming and configuration. Each step ensures proper post-replacement operation.

ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.

26. A — Use the manufacturer-specified scan tool, follow the manufacturer's procedure, ensure stable battery voltage, and verify successful programming. Module reprogramming requires manufacturer specifications and stable conditions. Battery voltage drops can corrupt the programming process. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

27. C — Battery voltage drop during programming, scan tool communication issue, or improper procedure. Programming failure can result from various causes. Stable conditions and proper procedure are critical for successful programming. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

28. B — Reference manufacturer technical service bulletins (TSBs) and DTCs that indicate software-related faults. Module reprogramming requirements are identified through manufacturer TSBs. Software-related DTCs may indicate the need for reprogramming. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

29. D — Calibration loss requiring relearn (blend door actuators, mode door actuators, climate control module). Battery replacement causes power loss to actuators with volatile memory. Multiple actuators require relearn after battery disconnect. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

30. A — Identify modules and actuators requiring relearn, perform each manufacturer-specified procedure, and verify proper operation. Climate control relearn requires identification of affected components and execution of each procedure. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

31. D — A protection signal limiting displacement (high-pressure protection, low refrigerant, or temperature protection). Variable displacement limitation indicates protection logic is active. Multiple conditions can trigger this protection. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*

32. B — Verify the customer concern, retrieve stored DTCs, monitor scan tool data for protection conditions, and identify the specific cause. Variable displacement diagnosis requires scan tool integration. The protection signals reveal the cause. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*

33. C — A failed climate control module, fault in the module power or ground, fault in the user interface, or network communication fault. Unresponsive module has multiple potential causes. Each component contributes to potential causes. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

34. A — Verify the customer concern, retrieve stored DTCs, verify module power and ground, monitor scan tool data, and identify the specific cause. Unresponsive module diagnosis requires comprehensive systematic approach. Each step provides different diagnostic information. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

35. C — Use scan tool data recorders, monitor for the symptom, perform wiggle testing, and capture data when the symptom occurs. Intermittent fault diagnosis requires capturing the symptom. Multiple methods enable observation of the fault when it occurs. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

36. B — Use scan tool data recorders, oscilloscope monitoring, or freeze frame data to capture conditions when the symptom occurs. Intermittent fault data capture requires tools that can record events. Each method provides different ways to capture the symptom. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

37. A — A failed sensor providing input to the system, fault in the climate control module, or fault in the actuator response. Incorrect setpoint operation has multiple potential causes. Each component contributes to system control. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

38. C — Verify the customer concern, retrieve stored DTCs, monitor scan tool data for sensor inputs and actuator commands, and identify the cause. Automatic temperature control diagnosis requires comprehensive systematic approach. Each step provides different diagnostic information. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

39. B — A failed in-car temperature sensor reporting incorrect (high) values, causing the system to run full cooling. A high in-car temperature reading triggers full cooling response. The sensor must report accurately for proper system operation. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

40. D — Verify each sensor input through scan tool monitoring, compare to actual conditions, and identify any sensor reporting incorrect values. Automatic climate sensor diagnosis requires comparison of reported values to actual conditions. Multiple sensors contribute to system inputs. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

41. A — A failed rear defroster timer, fault in the timer relay, or fault in the climate control timer function. Rear defroster timer faults have multiple potential causes. Each cause prevents proper timer operation. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

42. B — Verify the customer concern, verify timer operation, verify the time-out function, and identify the cause. Rear defroster timer diagnosis requires verification of the timer function. The time-out

feature is critical to proper operation. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

43. C — A failed climate control display, fault in the climate control module, or fault in the network communication. Display faults isolate to the display, module, or communication path. Each component contributes to potential causes. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

44. B — Verify the customer concern, retrieve stored DTCs, verify scan tool data matches display, and identify the cause. Display fault diagnosis requires verification of scan tool data versus display content. Mismatches indicate display issues. *ASE Task Reference: A7 Domain D — Operating Systems and Related Controls. Review subsection 7.4.*

45. A — Electromagnetic interference (EMI) from the compressor clutch or HVAC components affecting the audio system. EMI during A/C operation indicates electrical noise from HVAC components. The compressor clutch can produce significant EMI. *ASE Task Reference: A7 Domain A — A/C System Diagnosis and Repair. Review subsection 7.1.*

46. D — Identify the EMI source, address the routing or shielding, verify proper grounding, and verify resolution. EMI diagnosis requires source identification and addressing the coupling. Each step is required for effective resolution. *ASE Task Reference: A7 Domain A — A/C System Diagnosis and Repair. Review subsection 7.1.*

47. C — Belt slippage at high RPM, marginal compressor operation under high load, or compressor protection mode at high pressures. Speed-dependent A/C issues have multiple potential causes. Each cause manifests at high RPM. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*

48. B — Verify the symptom under matching conditions, monitor system pressures and operation, and identify the specific cause. Speed-dependent diagnosis requires symptom-matching conditions. Each cause reveals itself under specific operating conditions. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*

49. D — A heat-sensitive issue (engine cooling fan operation, condenser airflow at high temps, or component sensitivity to engine heat). Heat-sensitive A/C issues indicate components affected by temperature. Each cause manifests under heat conditions. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*

50. A — Verify the symptom under matching heat conditions, monitor system operation, and identify the specific cause. Heat-sensitive diagnosis requires symptom-matching conditions. The fault must be observed under the conditions that produce it. *ASE Task Reference: A7 Domain B — Refrigeration System Component Diagnosis and Repair. Review subsection 7.2.*