ASE T7 Truck HVAC Exam Prep

Free Practice Test — 30 Real Exam-Style Questions

with full answer key & explanations

Practice Questions

Try all 30 first, then check the answer key at the back.

1. A truck's heater produces inadequate heat. Which of these is the most likely cause?

A. A faulty blower motor
B. A properly functioning thermostat
C. An overcharged cooling system
D. Air in the cooling system

2. A driver complains of constant window fogging in cold weather. Technician A says this could be caused by a clogged heater core. Technician B says it could be caused by a leaking heater core. Who is right?

A. B only
B. Neither A nor B
C. Both A and B
D. A only

3. Which of these should be performed first when diagnosing a truck with overheating problems?

A. Check for exhaust gas in the cooling system
B. Check coolant level and condition
C. Pressure test the radiator cap
D. Replace the thermostat

4. While performing a cooling system pressure test, the pressure drops steadily with no visible external leaks. This could indicate:

A. An internal cooling system leak
B. A faulty pressure tester
C. Normal system operation
D. An overcharged cooling system

5. A vehicle's cooling system is being flushed and refilled. When is the proper time to add coolant conditioner?

A. After the engine reaches operating temperature
B. One week after refilling the system
C. Only when corrosion is detected
D. When refilling with new coolant

6. When replacing a water pump, what should be checked before installing the new component?

A. A/C compressor pressure
B. Fuel pump operation
C. Belt alignment
D. Cabin air filter condition

7. A truck has coolant leaking from the weep hole of the water pump. This indicates:

A. The water pump is functioning correctly
B. The water pump seal has failed
C. Normal water pump operation
D. Overfilling of the cooling system

8. When bleeding air from a cooling system, the technician should:

A. Open the bleeder valve with the engine at operating temperature
B. Open the bleeder valve only when the engine is cold
C. Never open the bleeder valve with the engine running
D. Fill the system completely before starting the engine

9. A truck's temperature gauge reads normal, but the engine is overheating. The most likely cause is:

A. Low coolant level
B. Stuck open thermostat
C. Defective water pump
D. Defective temperature sending unit

10. When diagnosing poor heater performance, which of the following would cause reduced heat output?

A. An overcharging alternator
B. A high coolant level
C. A thermostat that is stuck open
D. A thermostat that is stuck closed

11. After replacing a radiator, the engine overheats. What should the technician check first?

A. Transmission fluid level
B. Proper bleeding of the cooling system
C. Alternator output
D. Battery voltage

12. A coolant hose is found to be hard and inflexible. The technician should:

A. Replace the hose
B. Apply coolant conditioner
C. Tighten the hose clamps
D. Test the coolant for acidity

13. When inspecting the fan shroud, which of the following conditions requires repair?

A. Proper clearance around the fan
B. Secure mounting to the radiator
C. Correct alignment with the fan
D. Cracks in the shroud

14. White exhaust smoke and coolant loss with no visible leaks indicates:

A. A plugged radiator
B. A malfunctioning water pump
C. A blown head gasket
D. Normal engine operation

15. A heater control valve does not allow coolant flow to the heater core. The most likely cause is:

A. The coolant is too cold
B. The valve is stuck in the closed position
C. The valve is stuck in the open position
D. The coolant level is too high

16. During a cooling system pressure test, the system will not hold pressure. After confirming no external leaks, Technician A says to check the EGR cooler. Technician B says to perform a combustion gas test in the cooling system. Who is right?

A. Both A and B
B. A only
C. B only
D. Neither A nor B

17. What is the correct procedure for tightening radiator hose clamps?

A. Tighten to maximum torque
B. Leave slightly loose to allow for expansion
C. Apply thread locking compound before tightening
D. Tighten until snug but not overtightened

18. The coolant recovery container is empty. This could indicate:

A. An overcharged cooling system
B. A malfunctioning coolant temperature sensor
C. A leak in the cooling system
D. Normal cooling system operation

19. When verifying proper coolant protection, the technician should:

A. Measure only the pH of the coolant
B. Use a refractometer to check freeze protection
C. Only check the color of the coolant
D. Feel the coolant for viscosity

20. A truck with an auxiliary heating system fails to provide adequate heat in the sleeper area. The most likely cause is:

A. Blocked heater flow control valve
B. Excessive coolant in the system
C. Overcharged electrical system
D. Excessive radiator airflow

21. A truck's A/C system has low high-side pressure and normal low-side pressure. Technician A says this could be caused by a restricted condenser. Technician B says this could be caused by a defective compressor. Who is right?

A. Technician A only
B. Both Technician A and B
C. Neither Technician A nor B
D. Technician B only

22. When recovering refrigerant from a medium-duty truck A/C system, what is the MINIMUM amount of refrigerant that must be recovered to be in compliance with EPA regulations?

A. 80% of the system capacity
B. 100% of the system capacity
C. 90% of the system capacity
D. 75% of the system capacity

23. When adding refrigerant oil to an A/C system, it's MOST important to use:

A. Oil with the highest viscosity rating
B. The type specified by the manufacturer
C. Any synthetic oil available
D. The least expensive oil available

24. What would cause an A/C system's high-side pressure to be excessively high while the low-side pressure is also higher than normal?

A. System overcharge
B. Restricted expansion valve
C. Faulty compressor reed valves
D. Low refrigerant charge

25. A heavy-duty truck's A/C system uses R-134a and has a sight glass in the liquid line. Bubbles are visible in the sight glass during operation. Technician A says this could indicate a low refrigerant charge. Technician B says this could indicate restrictions in the liquid line. Who is right?

A. Technician B only
B. Both Technician A and B
C. Neither Technician A nor B
D. Technician A only

26. The MOST accurate method to charge an R-134a system in a medium-duty truck is by:

A. Low-side pressure
B. Sight glass clarity
C. Weight
D. High-side pressure

27. Before performing a leak test on an A/C system, which of these should be verified first?

A. That the condenser fan is operating
B. That the system has adequate refrigerant charge
C. That the compressor clutch is engaged
D. That the expansion valve is opening

28. When using a refrigerant identifier, a sample shows that a truck's A/C system contains a mixture of R-134a and R-12. The CORRECT course of action is to:

A. Recover the entire charge into a separate cylinder for contaminated refrigerant
B. Continue service with the existing refrigerant
C. Top off the system with R-134a
D. Vent the system and recharge with R-134a

29. When charging an A/C system on a heavy-duty truck, why is it important to verify that the condenser is clean and unobstructed?

A. To ensure proper refrigerant flow rate
B. To prevent low-side pressure fluctuations
C. To maintain proper compressor lubrication
D. To prevent abnormally high high-side pressures during charging

30. When inspecting an A/C compressor belt on a Class 8 truck, what is the MINIMUM acceptable belt condition?

A. No more than three cracks per inch of belt
B. No cracks deeper than 75% of the belt thickness
C. No cracks deeper than 50% of the belt thickness
D. No cracks at all on the belt surface

Answer Key & Explanations

1. D — Air in the cooling system
Air trapped in the cooling system prevents proper coolant circulation through the heater core, resulting in inadequate heat output. Bleeding the air from the cooling system would restore proper flow and heat transfer.

2. C — Both A and B
Both technicians are correct. A clogged heater core can reduce heat output needed to clear windows, and a leaking heater core can introduce coolant moisture into the cab, causing window fogging.

3. B — Check coolant level and condition
Before performing more complex diagnostics, the first step should be checking coolant level and condition, as low coolant is a common cause of overheating problems.

4. A — An internal cooling system leak
If pressure drops during a cooling system test without visible external leaks, an internal leak such as a head gasket leak is likely allowing coolant to enter the combustion chamber or oil passages.

5. D — When refilling with new coolant
Coolant conditioner should be added when refilling the system with new coolant to ensure proper protection from the beginning of the new coolant's service life.

6. C — Belt alignment
Checking belt alignment is crucial before installing a new water pump to ensure proper operation and prevent premature failure of both the new pump and the belt system.

7. B — The water pump seal has failed
Coolant leaking from the weep hole indicates the water pump seal has failed, allowing coolant to escape. This means the water pump requires replacement.

8. A — Open the bleeder valve with the engine at operating temperature
Opening the bleeder valve while the engine is running at operating temperature allows air to escape as the thermostat opens and coolant begins to circulate fully through the system.

9. D — Defective temperature sending unit
If the temperature gauge reads normal while the engine is actually overheating, the temperature sending unit is likely defective, providing incorrect information to the gauge.

10. C — A thermostat that is stuck open
A stuck open thermostat prevents the engine from reaching proper operating temperature, which means the coolant going to the heater core isn't hot enough to produce adequate heat.

11. B — Proper bleeding of the cooling system
After radiator replacement, trapped air is a common cause of overheating. The cooling system should be properly bled to remove air pockets that can prevent proper coolant circulation.

12. A — Replace the hose
A hard, inflexible hose has deteriorated and is at risk of failure. It should be replaced to prevent potential cooling system failure and engine damage.

13. D — Cracks in the shroud
Cracks in the fan shroud can reduce cooling efficiency by allowing air to bypass the radiator. The shroud should be repaired or replaced to maintain proper cooling system function.

14. C — A blown head gasket
White exhaust smoke combined with coolant loss without visible external leaks strongly indicates a blown head gasket, which allows coolant to enter the combustion chamber where it burns and exits as white smoke.

15. B — The valve is stuck in the closed position
A heater control valve that doesn't allow coolant flow is most likely stuck in the closed position, which prevents hot coolant from entering the heater core and producing heat.

16. A — Both A and B
Both technicians are correct. The EGR cooler can develop internal leaks causing pressure loss, and a combustion gas test can identify if combustion gases are entering the cooling system through a head gasket leak or cracked cylinder head.

17. D — Tighten until snug but not overtightened
Radiator hose clamps should be tightened until snug, but overtightening can damage the hose or connection. They need to be secure enough to prevent leaks without cutting into the hose material.

18. C — A leak in the cooling system
An empty coolant recovery container typically indicates a leak in the cooling system, as the system should maintain a proper coolant level between the recovery container and the radiator during normal operation.

19. B — Use a refractometer to check freeze protection
Using a refractometer provides the most accurate measurement of coolant freeze protection by measuring the glycol concentration, which determines the freezing point of the coolant mixture.

20. A — Blocked heater flow control valve
A blocked or restricted heater flow control valve would prevent or limit hot coolant from flowing through the auxiliary heater core, resulting in inadequate heat output in the sleeper area.

21. D — Technician B only
A restricted condenser would cause high high-side pressure, not low. A defective compressor that cannot properly compress the refrigerant would result in low high-side pressure while the low-side pressure remains normal.

22. C — 90% of the system capacity
EPA regulations require that when servicing mobile A/C equipment, at least 90% of the refrigerant must be recovered if the appliance has its compressor working.

23. B — The type specified by the manufacturer
Using the correct type of refrigerant oil as specified by the manufacturer is critical. Different refrigerants require specific oil types, and mixing incompatible oils can damage system components and reduce efficiency.

24. A — System overcharge
An overcharged system will have excessive refrigerant, causing both high-side and low-side pressures to be higher than normal.

25. D — Technician A only
Bubbles in the sight glass typically indicate a low refrigerant charge as the system doesn't have enough liquid refrigerant to completely fill the liquid line. Restrictions would more likely cause high-side pressure increases rather than bubbles.

26. C — Weight
Weight is the most accurate method to charge an R-134a system as it ensures the exact specified amount is added regardless of temperature conditions or system state.

27. B — That the system has adequate refrigerant charge
The system must have sufficient refrigerant charge to create enough pressure for an effective leak test. Without adequate pressure, leaks might not be detectable.

28. A — Recover the entire charge into a separate cylinder for contaminated refrigerant
When a system contains mixed refrigerants, the entire charge must be recovered into a separate recovery cylinder designated for contaminated refrigerant. Mixed refrigerants cannot be reused and must be properly disposed of according to regulations.

29. D — To prevent abnormally high high-side pressures during charging
A dirty or obstructed condenser reduces heat transfer efficiency, which can cause abnormally high high-side pressures during charging. This might lead to an incorrect diagnosis of system condition or improper charge amount.

30. C — No cracks deeper than 50% of the belt thickness
An A/C compressor belt should have no cracks deeper than 50% of the belt thickness. Deeper cracks indicate significant wear and increase the risk of belt failure during operation.

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