1. How should oxy-acetylene tanks be stored?
   A. Chained vertically.
   B. Capped and vertical.
   C. Capped and chained vertically.
   D. Capped and chained horizontally.

2. Which checks are performed to verify low power on a diesel engine during a road test?
   A. Boost and fuel pressure.
   B. Boost and crankcase pressure.
   C. Fuel pressure and exhaust temperature.
   D. Fuel temperature and exhaust back pressure.

3. An engine is losing coolant and there is no external leakage. What is done to determine the cause of the problem?
   A. Pressurize the oil system and check for oil in cooling system.
   B. Pressurize the fuel system and check for signs of fuel in the coolant.
   C. Check exhaust manifold with heat thermometer for poor cylinder performance.
   D. Drain the oil, pressurize the cooling system and check for coolant leaks at the drain plug.

4. When troubleshooting a cooling system, oil is found in the coolant. How is the source of the oil contamination determined?
   A. Remove oil cooler and pressure test.
   B. Remove water pump and pressure test.
   C. Check for excessive water pump pressure.
   D. Check for excessive radiator cap pressure.
SAMPLE TEST QUESTIONS TRUCK AND TRANSPORT MECHANIC -
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5. What is done when the oil pressure fluctuates?
   A. Check the engine oil level, then test the engine oil sensor.
   B. Remove the oil pan and test the oil pump and inlet assembly.
   C. Check the engine oil level and send out a sample for analysis.
   D. Check the engine oil level and check pressure with manual gauge.

6. A truck has repeated front crank seal failures. What is the cause?
   A. Fan belts are too loose.
   B. Breather filter is missing.
   C. Breather filter is plugged.
   D. Vibration damper bolts are over torqued.

7. What is done to detect a leak on the primary side of a diesel engine fuel system?
   A. Check all fuel lines with soap and water.
   B. Cap fuel return line and pressurize line at primary filter.
   C. Apply fluorescent to fuel and check lines with black light.
   D. Apply minimal pressure to fuel tank and check lines for leaks with soap and water.

8. An injector has been replaced. Shortly after replacement, the engine oil is found to be diluted with fuel. What is done?
   A. Replace the fuel regulator valve.
   B. Replace fuel pump and filter, and road test.
   C. Pressure test fuel gallery and check for leaks.
   D. Pressure test the fuel transfer pump and look for leaks.
9. What is the final step before returning a vehicle to service?
   A. Road test vehicle.
   B. Clear active fault codes.
   C. Clear historic fault codes.
   D. Update vehicle service records.

10. An engine experienced a major connecting rod bearing failure. What is done to the oil cooler during the engine overhaul?
    A. Replace core assembly.
    B. Steam clean and air dry.
    C. Reverse flush with solvent.
    D. Clean thoroughly with solvent and blow dry.

11. What is the recommended ratio to use when replacing engine coolant with standard antifreeze?
    A. 30% water, 70% antifreeze.
    B. 50% water, 50% antifreeze.
    C. 70% water, 30% antifreeze.
    D. 75% water, 25% antifreeze.

12. Excessive oil contamination is found in the secondary reservoir. What is the most likely cause?
    A. Faulty air drier.
    B. Faulty purge valve.
    C. Faulty turbo charger.
    D. Faulty air compressor.
13 On a tractor, a 412.46 kPa (60 psi) application is required to stop when not coupled to a trailer, and a 206.73 kPa (30 psi) application is required to stop when coupled to a trailer. What should be done?

A. Check for ruptured spring brake diaphragm.
B. Check the ratio valve to ensure proper functioning.
C. Check the double check valve to ensure proper functioning.
D. Check the bobtail proportioning valve to ensure proper functioning.

14 What is the first step to test the function of an antilock relay valve (ARV)?

A. Check the antilock modulator between the ARV and the brake chamber.
B. Check the ARV differential pressure by applying 10 psi to the service port.
C. Build the tractor system air pressure to 120 psi and make several service brake applications.
D. Install a tee fitting at the ARV service port and at one delivery port, and install a gauge in each.

15 A rotor with a minimum specification of 1.420 in., measures 1.475 in. in thickness and has a lateral run-out of 0.030 in. What is done?

A. Replace the rotor assembly.
B. Machine 0.015 in. off both sides.
C. Machine 0.030 in. off both sides.
D. Replace brake pads with thicker ones.

16 What is the procedure to test the pickup coil in an electronic ignition?

A. Test coil at 60°C (140°F).
B. Test the voltage with a voltmeter.
C. Test the resistance with an ohmmeter.
D. Remove coil from vehicle before testing.
17 When an electronic ignition switch is in the crank position, the engine starts. As soon as the ignition switch is released to the run position, the engine stops. What is defective?

☐ A. Spark plugs.
☐ B. Cap and rotor.
☐ C. Ignition switch.
☐ D. Spark plug cables.

18 There is an active code for an open engine speed sensor. After installing a jumper on the harness pins at the sensor connector end, the code does not change. What is the problem?

☐ A. Shorted data link.
☐ B. Blown ECU fuse.
☐ C. Faulty engine harness.
☐ D. Grounded engine speed sensor.

19 On a 12-V maintenance-free battery with a 600 cold-cranking amps rating, a load of 300 A is required. After 15 seconds, what is the minimum acceptable voltage reading?

☐ A. 4.6 V
☐ B. 8.6 V
☐ C. 9.6 V
☐ D. 10.6 V

20 An engine is running at 1000 rpm. On a single wire alternator, the output reads 12 V and 0 A. What is the problem?

☐ A. Defective battery.
☐ B. One positive diode is open.
☐ C. One negative diode is open.
☐ D. Defective voltage regulator.
21 When disassembling a starter, it is noticed that the armature has made contact with the field windings. What is the probable cause?

A. Armature swelling.
B. Field winding swelling.
C. Worn commutator bar.
D. Worn armature bushings.

22 How is an ammeter connected to check an electrical circuit?

A. In series with the load.
B. In parallel with the load.
C. Across the voltage supply.
D. In series-parallel with the load.

23 What should be done after installing a new accessory belt?

A. Check the belt tension at next service.
B. Check belt tension after running engine.
C. Ensure top of belt is fully recessed in pulleys.
D. Set tension to 0 deflection to compensate for belt stretch.

24 What causes a low stall speed on an automatic transmission?

A. Freewheeling stator.
B. Faulty converter pump.
C. Slipping forward clutch.
D. Incorrect torque converter.
25. What causes repeated low mileage U-joint failure?
   A. Low speed, low angle operation.
   B. Excessive spline joint lubrication.
   C. High speed, high angle operation.
   D. Excessive torque on the midship bearing bracket.

26. An auxiliary section of a twin countershaft transmission is being rebuilt. The output shaft and bearings are loosely installed. What is the next step?
   A. Time and install counter shafts.
   B. Install the rear auxiliary drive gear.
   C. Install the output shaft rear bearing.
   D. Install the high/low range synchronizer.

27. What is the final check after rebuilding an automatic transmission torque converter?
   A. Leak test.
   B. Balance test.
   C. Stator clutch.
   D. Oil pump end play.

28. What is done if the axle will not come out when removing rear wheel hubs?
   A. Remove the driveline.
   B. Check torque wheel nuts.
   C. Ensure brakes are released.
   D. Check wheel-bearing adjustment.
29. What is done before uncoupling an air ride tractor from the trailer?
   A. Inflate air suspension.
   B. Deflate air suspension.
   C. Ensure maximum tractor air pressure.
   D. Place wheel chocks for tractor wheels.

30. What is done to prevent frame flanges from collapsing when installing accessories with U-bolts?
   A. Reinforce with PVC blocks.
   B. Reinforce by welding in support bars.
   C. Install steel blocks in the frame flanges.
   D. Install soft wooden blocks in the frame flanges.