

Sample Test Question on **Engine Repair**

1. A technician is checking for piston ring groove clearance. The proper technique includes.

- A. The old ring and a feeler gauge.
- B. The new ring and a feeler gauge.
- C. Only a feeler gauge.
- D. No feeler gauge is required.

2. A cylinder power balance test is being performed on a vehicle with sequential fuel injection. The number five cylinder's rpm drop is less than all of the others. Technician A says this could be the result of a restriction in the fuel injector. Technician B says this could be caused by leaking secondary insulation. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

3. A turbocharger wastegate is sticking. Technician A says a stuck open wastegate will result in overboost. Technician B

says a stuck closed wastegate will result in an underboost condition. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

4. Technician A says a supercharger uses an intercooler to keep the engine's oil cool. Technician B says intercoolers are used on turbochargers to keep the oil cool. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

5. A wet compression test is being performed on a four cylinder engine. The number two cylinder's compression is below specifications and remains the same after injecting oil. This result indicates:

- A. Worn piston rings.
- B. A faulty valve.
- C. A hole in the piston.
- D. Excessive carbon buildup on the piston's dome.

6. A vehicle has blue colored exhaust. Technician A says this may be caused by weak piston rings. Technician B says this may be caused by a leaking fuel injector. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

7. Technician A says to remove the ridge on the engine block before removing the pistons. Technician B says a block's ridge will damage the new piston rings during installation. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

8. A vehicle briefly blows blue/gray smoke from the tailpipe when it's first started in the morning. The MOST likely cause of this condition is a:

- A. Worn piston ring.
- B. Lean fuel condition.
- C. Leaking fuel injector.
- D. Leaking valve seal.

9. During a cylinder leakage test air bubbles appear in the neck of the radiator. Technician A says a faulty intake valve will cause this condition. Technician B says a crack in the engine block will cause this condition. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

10. After diagnosing and replacing the cooling system's water pump, the vehicle's engine continues to overheat. Which of these is the MOST likely cause.

- A. An air pocket in the system.
- B. Leaking head gasket.
- C. Faulty replacement water pump.
- D. The radiator.

11. Two technicians are discussing engine sealants and form in place gaskets. Technician A says sealants such as RTV are aerobic. Technician B says some sensors may be damaged if an unapproved sealant is used. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

12. An engine has a noise that goes away as the engine warms and reaches operating temperature. Which of these is the MOST likely cause.

- A. Loose main bolt.
- B. Loose connecting rod bolt.

- C. Piston to wall clearance.
- D. Loose intake manifold.

13. An engine suffers from detonation. Technician A this may be caused from a defective EGR valve. Technician B says advanced ignition timing can cause this condition. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

14. Technician A says faulty turbocharger bearings will result in a loss of engine oil. Technician B says a dirty turbocharger air filter will result in a loss of engine oil. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

15. A squeal is heard in the front of a supercharged V6 engine. This squeal gets louder as the engine is accelerated. Which of these is causing this condition?

- A. Supercharger front roller bearings.
- B. Faulty serpentine belt tensioner.
- C. Turbine shaft needle bearings.

- D. Both A and B

16. A vehicle's engine is sluggish and slow to crank. Technician A says to check the starter and its circuit first. Technician B says to check the voltage, capacity, and condition of the battery. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

17. A vehicle's battery is good and passes all testing, but continues to die overnight. It's being tested for parasitic battery drain. Technician A says to set the meter to measure voltage and connect the probes in series between the positive terminal and the battery post. Technician B says to set the meter to measure amperage and connect the probes in series between the negative battery terminal and the negative battery post. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

18. Two technicians are discussing cylinder bore measurements. Technician A says the cylinder's bore should be measured for out of round. Technician B says the cylinder's bore should be measured and checked for taper. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

19. Technician A says that connecting rods and the rod caps are matched and can not be mixed. Technician B says it may be necessary to mark these parts for reassembly. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

20. Engine crack repair is being discussed. Technician A says metal pinning is an accepted method of cracked cylinder head repair. Technician B says metal pinning is an accepted method of cracked engine block repair. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

21. Which of these is LEAST likely to cause low oil pressure in an engine.

- A. A faulty oil pressure valve.
- B. A worn crankshaft bearings.
- C. A worn camshaft bearings.
- D. Worn valve guides.

22. Technician A says valve spring installed height is measured from the outer edge of the valve spring retainer to the pocket in the cylinder head. Technician B says that too thin of a valve margin will not effect its operating temperature. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

23. Technician A says that magnetic particle detection is an acceptable method to detect cracks in aluminum castings. Technician B says a special dye is used to detect cracks in aluminum castings. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

24. Technician A says that minor scoring on the surface of a flywheel can be removed. Technician B says if the transmission flexplate's ring gear shows excessive wear or cracking it must be replaced. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

25. Two technicians are discussing the camshaft in a V8 engine. Technician A says to use an outside micrometer to measure the diameter of a camshaft

journal. Technician B says a camshaft spins twice for every one revolution of the crankshaft. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

26. A vehicle is emitting black exhaust from its tailpipe under all driving conditions. This is because:

- A. There is oil in the combustion chamber.
- B. There is coolant in the combustion chamber.
- C. There is too much fuel in the combustion chamber.
- D. There is too much air in the combustion chamber.

27. The top compression ring groove of piston is worn excessively and the gap is found to be larger than specifications. The technician would MOST likely:

- A. Use a tapered ring set to repair this piston.
- B. Use oversized rings to repair this piston.
- C. Use a ring groove cleaner to repair the grooves.
- D. Replace the piston.

28. During initial inspection the technician notices that there's a strong sulfur odor emitting from the vehicle's tailpipe. The customer states that the vehicle has been getting poor fuel mileage. The MOST likely cause of this condition is:

- A. A lean fuel condition.
- B. Leaking head gasket.
- C. Worn piston rings.
- D. A rich fuel condition.

29. A technician performs a battery capacity test on a vehicle that will not start. The test results in a reading of 9.1 volts at 70° F. Technician A says the battery has failed the capacity test. Technician B says battery voltage readings will increase as temperature decreases. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

30. Technician A says an engine's main bearing insert has a hole that must align with the matching bores oil supply hole. Technician B says that crankshaft bore alignment can be checked with a feeler gauge and a straightedge. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

31. A cylinder power balance test is being performed on a vehicle with sequential fuel injection. Two adjacent cylinders are under performing. Technician A says this could be due to a faulty head gasket. Technician B says this could be due to leaking secondary insulation. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

32. Two technicians are discussing hydraulic lifter preload. Technician A says excessive preload will cause high manifold vacuum. Technician B says insufficient preload will cause excessive valve train noise. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

33. A vehicle's cooling system is losing coolant. There is corrosion found around the aluminum water pump. Which of these is MOST likely to cause this condition.

- A. Stuck open thermostat.
- B. Electrolysis.
- C. Loose radiator cap.
- D. Faulty head gasket.

34. A technician installs a radiator pressure tester on the radiator of a cold engine. After starting the engine the pressure quickly rises to 18 psi. Technician A says this is a normal condition. Technician B says the engine has a leaking cylinder head gasket. Who is correct?

- A. Technician A

- B. Technician B
- C. Both A and B
- D. Neither A or B

35. Two Technicians are discussing a PCV system. Technician A says a stuck closed PCV valve could cause external oil leaks. Technician B says that the PCV system removes blowby gases from the engine case. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

36. An OHC engine has recently had the cylinder head replaced. The engine runs rough and stumbles. Technician A says this may be caused by incorrect valve lash adjustment. Technician B says that only in-block camshafts require valve lash adjustments. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

37. Technician A says worn valve springs result in valve float at wide open throttle. Technician B says valve springs should be inspected for squareness with a square and a feeler gauge. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

38. Technician A says the valves in many interference engines open further into the combustion chamber than those of a non-interference engine. Technician B says a broken timing belt in an interference engine can result in damage to the engine's valve train. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

39. The spark plug is removed and shop air is introduced to the #1 cylinder while at TDC. Bubbles are seen in the radiator neck. The MOST likely cause of this condition is:

- A. A bent intake valve.
- B. Worn piston rings.
- C. A burned exhaust valve.
- D. A leaking head gasket.

40. A vehicle is emitting black smoke from its tailpipe, has poor fuel mileage and the torque converter is not engaging. Technician A says the ECT sensor's signal will effect TCC application. Technician B says the ECT sensor will affect the engine's fuel mixture. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

41. Technician A says a flex fan will increase its pitch at higher engine speeds. Technician B says a viscous fan clutch contains a silicon based fluid and should be checked for leaks. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

42. A vehicle has a clogged catalytic converter. The LEAST likely cause of this is:

- A. A rich fuel condition.
- B. A leaking fuel injector.
- C. A cracked intake manifold.
- D. A fouled spark plug.

43. After performing a cylinder pressure test on a four cylinder engine, the #1 cylinder is 30 psi below specifications. All the other cylinders have passed. The pressure in the #1 cylinder increased after injecting engine oil. Technician A says excessive carbon buildup on the piston head has caused these test results. Technician B says these results indicate a faulty intake or exhaust valve. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

44. One valve tip on a cylinder head is much higher than the others. The MOST likely cause of this is:

- A. Weak spring tension.
- B. Valve spring installed height.
- C. The valve seat.
- D. Loose head bolts.

45. Two technicians are discussing a ballooned oil filter. Which of these is causing this condition:

- A. Contaminated oil.
- B. Stuck closed oil pressure relief valve.
- C. Stuck closed oil filter bypass valve.
- D. All of the above.

46. The best tool for checking crankshaft end play is a:

- A. Bore gauge.
- B. Digital micrometer.
- C. Dial indicator.
- D. None of the above.

47. An engine has excessive crankshaft endplay. Which of the following is MOST likely causing this condition?

- A. Camshaft bearings
- B. Thrust bearings
- C. Crankshaft main bearings
- D. Rod bearings

48. Two technicians are discussing an engine that suffers from repeated spark plug failure. Technician A says a hot spark plug with too high of a heat range may result in detonation. Technician B says a cold spark plug with too low of a heat range may foul prematurely. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

49. A light truck with a DOHC V6 engine and a manual transmission is making a rattling noise at idle, near the bottom rear end of the engine. This noise increases with engine speed. Technician A says the flywheel bolts may be loose. Technician B says this noise is likely caused by hydraulic lifter leak down. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

50. An oil pressure switch is being tested for operation. Technician A says to use a digital multimeter. Technician B says this switch can be tested on the vehicle. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

ANSWERS ON ENGINE REPAIR

**1. B 2. C 3. D 4. D 5. B 6. A 7. C 8. D 9. B 10. A 11. C 12. C
13. C 14. A 15. D 16. B 17. B 18. C 19. C 20. C 21. D 22. A 23. B
24. C 25. A 26. C 27. D 28. D 29. A 30. C 31. C 32. B 33. B 34. B
35. C 36. A 37. C 38. C 39. D 40. C 41. B 42. C 43. D 44. C 45. D
46. C 47. B 48. C 49. A 50. C**

Sample Questions on engine performance

1. Technician A says the PCM will advance the engine's ignition timing when it receives a voltage signal from the knock sensor. Technician B says this sensor sends an AC signal to the PCM when it detects ping or detonation. Who is correct?
 - A. Technician A
 - B. Technician B

- C. Both A and B
- D. Neither A or B

2. An engine with variable valve timing has a rough idle, but runs smoothly at higher engine speeds. Technician A says to check the variable valve timing solenoid and its associated circuit. Technician B says this problem can be caused by unchanged contaminated oil. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

3. Technician A says an AF (Air/Fuel) sensor is designed to reach and keep an engine at stoichiometry. Technician B says stoichiometry is 15.7:1 air to fuel mixture. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

4. A vehicle with an enhanced EVAP system is scanned and a code indicating a small evaporative emissions leak is detected. A loose or cracked gas cap is suspected. Technician A says the cap contains a vacuum and pressure relief valve, a small crack in the cap will not illuminate the check engine light. Technician B says

the tank contains a sensor. The PCM will sense low tank pressure, set a code and illuminate the check engine light. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

5. Two technicians are discussing turbocharger boost pressure. Technician A says a boost pressure sensor provides the intake manifold's boost pressure to the PCM. Technician B says a leaking wastegate diaphragm will effect exhaust flow through the turbine wheel. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

6. An engine with a viscous fan clutch is running hot while the engine is idling and the vehicle is at rest. Technician A says this type of fan clutch should be checked for leakage. Technician B says the viscous fan and it's electrical system should be tested for a defective relay resulting in an inoperative fan clutch. Who is correct?

- A. Technician A

- B. Technician B
- C. Both A and B
- D. Neither A or B

7. A fuel pressure test performed at the fuel rail of a SFI sequential fuel injection engine indicates lower than specified fuel pressure. All of these would cause this test result EXCEPT:

- A. A poor ground in the pump circuit.
- B. A kink in the fuel return line.
- C. A restricted fuel filter.
- D. A faulty fuel pump.

8. An EFI engine with a Mass Air Flow sensor is scanned and the LTFT is found to be 24% at idle. This percentage decreases as the engine's speed is increased to 1500 rpm. All of the following will result in this fuel trim percentage EXCEPT:

- A. A faulty oxygen sensor.
- B. A dripping fuel injector.
- C. A dirty Mass Air Flow sensor.
- D. A leaking vacuum line.

9. Which of the following is LEAST likely to result in a rich air fuel ratio?

- A. A leaking fuel injector.
- B. A faulty fuel pressure regulator.

- C. A faulty ECT engine coolant temperature sensor.
- D. A stuck closed thermostat.

10. Two technicians are discussing a four wire oxygen sensor. Technician A says this oxygen sensor contains a heater circuit. Technician B says the engine's control module uses the oxygen sensor's voltage signal to adjust the air fuel ratio in closed loop. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

11. An emissions test is performed on a six cylinder engine. The test indicates high levels of NO_x. The MOST likely cause of this condition is:

- A. A rich air fuel mixture.
- B. A clogged catalytic converter.
- C. A cylinder misfire.
- D. A stuck closed EGR valve.

12. A technician is using a digital multimeter to test a ground circuit for excessive resistance. Technician A says to perform a voltage drop test on this circuit. Technician B says an ohmmeter is used and voltage must be present while performing this resistance test. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

13. Technician A says a stuck open PCV valve will result in a rich air fuel ratio. Technician B says the PCV system removes blowby gases from the engine's crankcase. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

14. An engine with an electronic ignition system will not start. There is no spark at any of the ignition coils. Technician A says the crankshaft position sensor serves as a triggering device for this ignition system. A faulty crankshaft position sensor will result in this no start condition. Technician B says the engine's crankshaft position sensor requires a triggering wheel or tone ring to function properly. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

15. A vehicle has a check engine light with codes indicating a problem with the enhanced evaporative emission system and a rich fuel condition. Technician A says a defective evaporative purge valve will cause a rich air fuel ratio. Technician B says the tank pressure sensor will notify the PCM of excessive tank pressure. Who is correct?

- A. Technician A

- B. Technician B
- C. Both A and B
- D. Neither A or B

16. A cylinder power balance test is being performed on a four cylinder engine. The #1 cylinder is disabled and a slight drop in rpm is noticed. Which of the following is correct?

- A. This is normal.
- B. A significant drop should be indicated.
- C. There should be no drop at all.
- D. There is no such thing as an engine cylinder power balance test.

17. The MAP sensor's vacuum hose is loose and cracking. Technician A says this sensor measures air mass to establish the fuel injector's base pulse width. Technician B says this sensor measures changes in intake manifold pressure. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

18. A misfire is detected at the #3 cylinder of a COP ignition system. There is no power at the Bat+ terminal of the coil. Which of the following is the MOST likely cause of this condition?

- A. Resistance in the primary circuit.
- B. Resistance in the secondary circuit.

- C. A leak in the secondary insulation.
- D. An open between the coil and it's power source.

19. The OBD II Enhanced Evaporative Emissions monitor has illuminated the check engine light and set fault code P0457 indicating that a gross leak has been detected. Which of the following is the MOST likely cause of this leak?

- A. A crimp in the vent hose.
- B. A saturated canister.
- C. A stuck closed purge valve.
- D. A loose fuel filler cap.

20. A vehicle with a four cylinder EFI engine has poor acceleration. Scan tool data indicates the engine has a LTFT of -19 % at idle indicating a rich air fuel ratio. Technician A says too much fuel in the air fuel mixture will damage the substrate of the catalytic converter. Technician B says a LTFT of -19 % indicates the PCM is adding fuel to the air fuel ratio. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

21. A vehicle has a fuel trim of -5 % at idle and -25 % at cruise. Scan tool data indicates a steady oxygen sensor output voltage of 800Mv. When a vacuum hose is disconnected from the intake manifold, there is no change in the oxygen sensor's voltage. This condition is caused by:

- A. An intake manifold leak.
- B. A faulty throttle position sensor.

- C. A faulty oxygen sensor.
- D. A kink in the fuel returns line.

22. A vehicle cranks but will not start. As the technician turns the ignition key the security light continues to flash slowly. Which of the following is MOST likely the causing this no start condition?

- A. The ignition switch.
- B. A faulty PCM.
- C. No power to the injectors.
- D. A dead battery.

23. A fault code indicating a rich air fuel ratio has been repaired by replacing a leaking fuel injector. The vehicle is now backfiring and has a lack of power. Technician A says the rich fuel mixture has clogged the catalytic converter and a back pressure test should be performed. Technician B says a vacuum gauge can be used to diagnose a restriction in the exhaust system. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

24. Two technicians are discussing OBD II code P0301. Technician A says the P in the code stands for powertrain. Technician B says the 0 in the code means it is manufacturer specific. Who is correct?

- A. Technician A

- B. Technician B
- C. Both A and B
- D. Neither A or B

25. An EFI engine stalls and then starts back up. Sometimes it takes several tries to start. Technician A says a loose connection at the crankshaft position sensor would result in this condition. Technician B says an open at the crankshaft position sensor would result in this condition. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

26. An EGR valve vacuum solenoid has 18 "hg. as its vacuum source. The resistance checks out OK. Vacuum pressure is manually applied to the EGR valve with a pump and a slight stumble is noticed. There is little drop in rpm. This is caused by:

- A. A faulty vacuum solenoid.
- B. A poor vacuum source.
- C. A restriction in the EGR passage.
- D. A faulty EGR position sensor.

27. A cylinder power balance test is being performed on a vehicle with sequential port fuel injection. Two adjacent cylinders are under performing. Technician A says this could be caused by a restriction in the fuel injectors.

Technician B says this could be caused by leaking secondary insulation. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

28. A COP ignition system has no spark at any of the coils. Which of these is MOST likely causing this loss of spark?

- A. A faulty PCM driver.
- B. Excess resistance in the primary circuit.
- C. Excess resistance in the secondary circuit.
- D. No power to PCM BAT+.

29. Technician A says the MAP sensor is located on the intake manifold and informs the PCM of intake manifold pressure. Technician B says the MAF sensor senses air flow in the air tube. It's signal indicates engine load to the PCM. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

30. After performing a wet compression test, the pressure in each of the cylinders increased, but remained below specifications. Technician A says this is caused by incorrect valve timing. Technician B says this is caused by worn piston rings. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

31. A vacuum gauge is connected to a port on the intake manifold of an engine with poor performance. The needle on the gauge fluctuates between 15 "hg and 20 "hg vacuum at idle. This vacuum gauge reading indicates:

- A. A normal condition.
- B. Late ignition or valve timing.
- C. A burned exhaust valve.
- D. A restricted exhaust.

32. Technician A says a stuck closed (EGR) exhaust gas recirculating valve will cause an engine to stumble or stall. Technician B says a stuck open EGR valve will cause detonation. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

33. A vehicle is emitting black smoke from its tailpipe at idle. Which of the following is causing this condition?

- A. A leaking fuel injector.
- B. Worn piston rings.

- C. A blown head gasket.
- D. Leaking valve seals.

34. An engine suffers from a lack of power during acceleration. A vacuum test is being performed. At 2500 rpm the vacuum gauge needle drops slowly to 10 "hg. Which of the following is causing these vacuum test results?

- A. A clogged catalytic converter.
- B. Late valve timing.
- C. A faulty head gasket.
- D. Burned exhaust valve.

35. The PCM uses all of these inputs to calculate air fuel ratio and speed control EXCEPT:

- A. An engine coolant temperature sensor. (ECT)
- B. An exhaust gas recirculation valve. (EGR)
- C. An intake air temperature sensor. (IAT)
- D. A throttle position sensor. (TPS)

36. Two technicians are discussing a turbocharged engine. Technician A says the wastegate is a component used to control boost pressure. Technician B says when opened, the wastegate diverts exhaust gas from the turbine wheel. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

37. Technician A says when the vacuum hose is disconnected from a vacuum operated fuel pressure regulator, fuel pressure should increase. Technician B says a restricted fuel return line will cause low fuel rail pressure. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

38. Technician A says to complete the recommended drive cycle after replacing the vehicle's engine control module. Technician B says completing a drive cycle includes steps like driving the vehicle at certain speeds for a set period of time. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

39. A vehicle has a momentary hesitation only during acceleration. The MOST likely cause of this condition is:

- A. A faulty exhaust gas recirculating valve. (EGR)
- B. A faulty oxygen sensor. (O_2) sensor
- C. A faulty positive crankcase ventilation valve. (PCV)

- D. A faulty throttle position sensor. (TPI)

40. A four cylinder EFI engine has an engine code indicating insufficient EGR flow. The EGR solenoid has been tested and found to be faulty. This faulty solenoid will result in which of these conditions.

- A. High CO emissions.
- B. High HC emissions.
- C. High CO₂ emissions.
- D. High NO_x emissions.

41. A vehicle has suffered a sudden drop in fuel economy. The variable valve solenoid is commanded on and there is no change in engine operation. Technician A says to inspect the variable valve system's oil control valve. Technician B says contaminated engine oil can result in this condition. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

42. Technician A says a (TPI) throttle position sensor is a potentiometer that indicates throttle angle. Technician B says a throttle position sensor can be tested for resistance with an ohmmeter. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B

- D. Neither A or B

ANSWERS ON ENGINE PERFORMANCE

1. B 2. C 3. A 4. B 5. C 6. A 7. B 8. B 9. 10. C 11. D 12. A 13. B
14. C 15. C 16. B 17. B 18. D 19. D 20. A 21. C 22. A 23. C 24. A 25. A
26. C 27. C 28. D 29. C 30. B 31. C 32. D 33. A 34. A 35. B 36. C 37. A
38. C 39. D 40. D 41. C 42. C

Sample test question on Automatic Transmission and Transaxle

1. Technician A says an internal transmission cooler is cooled by the engine's cooling system. Technician B says if the transmission fluid appears pink and milky, the transmission has been overheated and oxidation has occurred. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

2. Most modern transmissions use computerized electronics to control shift quality and timing. Technician A says EPC (electronic pressure control) regulates line pressure according to engine speed and torque. Technician B says the EPC solenoid is a variable force solenoid. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

3. Technician A says a transmission fluid temperature sensor is a thermistor. Technician B says a scan tool and an ohmmeter can be used to diagnose a TFT sensor. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

4. Technician A says the electronic transmission control module uses information from other control modules. The ECT engine coolant temperature sensor's input is used for TCC torque converter clutch control. Technician B says in today's electronic transmission, the governor has been replaced by the TPS or throttle position sensor . Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

5. An automatic transaxle slips only while turning corners. Which of the following has caused this condition?

- A. Worn Band
- B. Torque Converter Clutch
- C. Low Fluid Level

- D. Planetary Gearset

6. Fluid level is being checked on an automatic transmission that contains no dipstick. After bringing the transmission to operating temperature and removing the plug no transmission fluid is seen dripping from the outlet. Technician A says this is normal and the fluid level is correct. Technician B says this indicates an overfilled or overheated transmission. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

7. Which type of automatic transmission bearing requires a preload?

- A. Ball Bearing
- B. Thrust
- C. Tapered Roller
- D. Needle

8. The extension housing seal is leaking and the bushing is worn on one side. Technician A says this could be caused by a binding universal joint. Technician B says this is likely caused by excessive output shaft endplay. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B

- D. Neither A or B

9. A transaxle's torque converter clutch is not engaging. Technician A says this is caused by the TFT sensor. Technician B says this could be caused by the ECT sensor. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

10. Technician A says to pressure test a transmission if an internal leak is suspected. Technician B says pressure testing ports are located on the transmission case. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

11. Technician A says a transmission brake band is a holding device. Technician B says a hydraulically controlled servo is used to activate the brake band. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

12. Automatic Transmissions use all of these pressures for shift control EXCEPT:

- A. Governor
- B. Torque Converter
- C. Vacuum Modulator
- D. Throttle Valve

13. All of these are types of transmission oil pumps EXCEPT.

- A. Rotor
- B. Vane
- C. Diaphragm
- D. Gear

14. An automatic transmission has delayed initial engagement when shifted into drive and reverse. Technician A says a clogged transmission oil filter will result in this condition. Technician B says oil pump starvation causes delayed shift engagement. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

15. Technician A says a TR sensor (Transmission Range Sensor) can be tested using an ohmmeter. Technician B says an improperly adjusted neutral safety switch can prevent a vehicle from starting. Who is correct?

- A. Technician A

- B. Technician B
- C. Both A and B
- D. Neither A or B

16. Two technicians are removing a transmission's valve body. Technician A says the separator plate blocks off some passages while allowing fluid to flow in others. Technician B says the seat for a ball-type check valve may be located in the separator plate. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

17. A vehicle lacks power when accelerating from a stop. Technician A says this could be caused by chipped teeth on the pinion gears. Technician B says the torque converter's one-way stator clutch may be slipping. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

18. Which member of the planetary gear set has internal teeth?

- A. The sun gear.
- B. The ring gear.
- C. The pinion gear.

- D. The spur gear.

19. Two technicians are discussing a vehicle's torque converter. Technician A says if the torque converter's hub has any imperfections it should be replaced. Technician B says the depth of the torque converter into the case should be measured before removal. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

20. Technician A says the MAP sensor is for the engine and has no affect on transmission shift control. Technician B says the MAF sensor provides information about engine load to the TCM (transmission control module) and is important for TCM shift control. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

21. A vibration occurs while driving a vehicle with an automatic transmission at normal speeds. This vibration does not occur during a stall test. Which of the following is causing this vibration.

- A. The torque converter.
- B. The driveshaft.
- C. Worn crankshaft main bearings.

- D. The EPC solenoid.

22. There is a whining noise coming from the front of the transmission that increases with engine speed. This noise is present in all gears including park and neutral. The MOST likely cause of this is the:

- A. Planetary gear set.
- B. Oil pump.
- C. Output shaft.
- D. Torque converter.

23. An automatic transmission slips only when cold. As the vehicle warms to operating temperature, the transmission's performance returns to normal. Which of these is causing this condition?

- A. The oil pump.
- B. Hardened seals.
- C. The torque converter.
- D. Input shaft end-play.

24. Technician A says to clean the valve body with solvent and a lint free cloth. Technician B says if a spool valve is bent it can be straightened and reused. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

25. During a transmission fluid check the technician notices the ATF is milky in appearance. The is caused by which of the following?

- A. Overheating
- B. A slipping band.
- C. Oxidation
- D. An oil cooler leak.

26. An automatic transmission suffers from harsh shifting into second gear. Technician A says a problem with the circuit's accumulator will result in this condition. Technician B says that accumulator's contain a spring that may be broken. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

27. Technician A says that a faulty throttle position sensor affects both engine and automatic transmission performance. Technician B says that the throttle position sensor indicates vehicle speed to the transmission control unit. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

28. There is a whining sound coming from the inside of a three speed transmission that is heard in first and second gear but goes away when the transmission shifts into third gear. This whining sound is MOST likely caused by:

- A. A worn output shaft bearing.
- B. A worn extension housing bushing.
- C. A worn multi-disc clutch.
- D. A faulty planetary gearset.

29. A vehicle with a three speed synchronous automatic transmission has engine flare while shifting from first to second gear in drive. Technician A says this is caused by early application of the intermediate band. Technician B says this is caused by a faulty overrunning clutch. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

30. After a recent transmission service a vehicle with an automatic transmission creeps forward when placed in neutral. Technician A says this is normal. Technician B says a worn or misadjusted manual valve will cause this problem. Who is correct?

- A. Technician A
- B. Technician B

- C. Both A and B
- D. Neither A or B

31. After draining the transmission fluid, pieces of black material are found in bottom of the transmission's oil pan. Which of these is causing this debris?

- A. Worn gear teeth.
- B. A worn bushing.
- C. A worn clutch.
- D. This is a normal condition.

32. A vehicle's automatic transmission is not down shifting correctly. A disconnected vacuum hose is noticed hanging by transmission case. This vacuum hose should be connected to which of the following?

- A. The Modulator.
- B. The Throttle Position Sensor.
- C. The Governor.
- D. The Vehicle Speed Sensor.

33. After a long drive red fluid is seen on the transmission case and under chassis of a vehicle. Technician A says this can be caused by fluid aeration. Technician B says this could be caused by engine overheating. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B

- D. Neither A or B

34. The MIL is illuminated and the transmission only operates in third and reverse gears. Which of the following is the MOST likely cause of this condition?

- A. Adaptive learning.
- B. High line pressure.
- C. Low line pressure.
- D. Limp-in mode.

35. Which of the following affect shift points in relation to vehicle speed?

- A. The throttle valve.
- B. The governor.
- C. Both of these.
- D. Neither of these.

36. While testing the TCM of an electronic automatic transmission the technician should use at least a:

- A. 1 Megohm tester.
- B. 5 Megohm tester.
- C. 10 Megohm tester.
- D. 20 Megohm tester.

37. A vehicle with an electronic automatic transmission is hunting for gears and having difficulty with shift timing. A scan indicates several sensors and shift solenoids are faulty. Technician A says to replace the sensors and rescan

the TCM. Technician B says to inspect the circuits leading the these components. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

38. An excessive clunk is felt while placing an automatic transaxle into gear. Technician A says this could be excessive deflection in the final drive chain. Technician B says this could be worn universal joints. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

39. An automatic transaxle loses pressure as it shifts from first to second gear. Technician A says this could be caused by the clutch piston seal. Technician B says this could be caused by a stuck servo. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

40. An automatic transmission has a late delayed shift from first to second gear. All other shift points are normal. The 1-2 shift valve is suspected of sticking in its bore. Technician A says to clean the transmission valves and valve body to remove tarnish and dry them with compressed air before

placing them back into service. Technician B says a slightly bent spool valve can be repaired and placed back into service. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

41. Technician A says that the vehicle speed sensor is driven by the input shaft of an automatic transmission. Technician B says that the parking pawl engages the input shaft to lock an automatic transmission in park. Who is correct?

- A. Technician A
- B. Technician B
- C. Both A and B
- D. Neither A or B

1. A 2. C 3. C 4. A 5. C 6. D 7. C 8. A 9. C 10. C 11. C 12. B 13. C

14. C 15. C 16. C 17. B 18. B 19. B 20. B 21. B 22. B 23. B 24. A 25. D
26. C 27. A 28. D 29. D 30. B 31. C 32. A 33. C 34. D 35. B 36. C 37. B
38. A 39. A 40. A 41. D