

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) When preparing for a compression test, technician A disables the ignition system. Technician B only removes the spark plug for the cylinder he is testing. Which technician is correct? 1) \_\_\_\_\_  
A) Technician A only B) Technician B only  
C) Both Technicians A and B D) Neither Technician A nor B
- 2) What does black exhaust smoke indicate? 2) \_\_\_\_\_  
A) Excessive fuel B) Insufficient fuel  
C) Coolant in combustion chamber D) Burning oil
- 3) The low oil pressure warning light usually comes on \_\_\_\_\_. 3) \_\_\_\_\_  
A) Whenever the oil filter antidrainback valve opens  
B) Whenever the oil filter bypass valve opens  
C) Whenever oil pressure drops dangerously low (4 to 7 (psi)  
D) Whenever an oil change is required
- 4) Technician A says that a leaking head gasket can be checked using a chemical tester. Technician B says that a leaking head gasket can be found using an exhaust gas analyzer. Which technician is correct? 4) \_\_\_\_\_  
A) Technician A only B) Technician B only  
C) Both Technicians A and B D) Neither Technician A nor B
- 5) A good reading for a cylinder leakage test would be \_\_\_\_\_. 5) \_\_\_\_\_  
A) All cylinders above 20% leakage  
B) All cylinders above 70% leakage and within 7% of each other  
C) Within 20% between cylinders  
D) All cylinders below 20% leakage
- 6) Which noise is most noticeable at idle? 6) \_\_\_\_\_  
A) Loose valve lifters B) Piston slap  
C) Main-bearing knock D) Worn thrust bearings
- 7) Technician A checks for gasoline in the oil by holding a match to the dipstick. Technician B checks for water in the oil by dropping a small amount on the hot manifold to see if it bubbles. Which technician is correct? 7) \_\_\_\_\_  
A) Technician A only B) Technician B only  
C) Both Technicians A and B D) Neither Technician A nor B
- 8) While performing a cylinder leakage test, technician A says that 20% leakage is acceptable. Technician B says that a cylinder will show too much leakage if the piston is not at TDC on its compression stroke. Which technician is correct? 8) \_\_\_\_\_  
A) Technician A only B) Technician B only  
C) Both Technicians A and B D) Neither Technician A nor B

- 9) Exhaust back pressure of an engine running at idle should be \_\_\_\_\_. 9) \_\_\_\_\_  
 A) Less than 1.5 PSI B) 1.5 in. Hg  
 C) 2.5 PSI D) 2.5 in. Hg
- 10) Technician A says that if the oil pressure warning light is on, the oil pressure should be checked with a manual gauge. Technician B says that a faulty electrical circuit could cause the oil pressure warning light to come on even when the oil pressure is good. Which technician is correct? 10) \_\_\_\_\_  
 A) Technician A only B) Technician B only  
 C) Both Technicians A and B D) Neither Technician A nor B
- 11) Technician A says that during a power balance test, the cylinder that causes the biggest RPM drop is the weak cylinder. Technician B says that if one spark plug wire is grounded out and the engine speed does not drop, a weak or dead cylinder is indicated. Which technician is correct? 11) \_\_\_\_\_  
 A) Technician A only B) Technician B only  
 C) Both Technicians A and B D) Neither Technician A nor B
- 12) Which of the following is LEAST likely to create a rattle sound? 12) \_\_\_\_\_  
 A) Loose accessory mounts B) Loose belt tensioner  
 C) Broken harmonic balancer D) Cracked flex plate
- 13) Which of the following could result in low engine compression? 13) \_\_\_\_\_  
 A) Damaged valve B) Cylinder head gasket leak  
 C) Damaged piston or piston ring D) All of these are correct.
- 14) Which of the following is NOT a cause of high exhaust back pressure? 14) \_\_\_\_\_  
 A) Restricted catalytic converter B) Restricted exhaust pipe.  
 C) Restricted muffler D) Vacuum leak
- 15) A cylinder power balance test is performed. Cylinders 1, 2, and 3, all drop 175 RPM when disabled with a scan tool. Cylinder 4 drops 50 RPM when disabled. The following statements are all correct EXCEPT \_\_\_\_\_. 15) \_\_\_\_\_  
 A) Cylinder 4 is much stronger than 1, 2, and 3.  
 B) There may be a mechanical problem with cylinder 4.  
 C) Cylinder 4 is much weaker than 1, 2, and 3.  
 D) This test could also be conducted by grounding the plug wire for each cylinder.
- 16) Technician A says that removing the plug wire from a spark plug while the engine is running could damage ignition system components. Technician B says that grounding a spark plug wire while the engine is running could damage ignition system components. Which technician is correct? 16) \_\_\_\_\_  
 A) Technician A only B) Technician B only  
 C) Both Technicians A and B D) Neither Technician A nor B
- 17) A smoothly operating engine depends on \_\_\_\_\_. 17) \_\_\_\_\_  
 A) Compression levels below 100 psi (700 kPa) on most cylinders  
 B) Equally compression among cylinders  
 C) Cylinder compression levels above 100 psi (700 kPa) and within 70 psi (500 kPa) of each other  
 D) High compression on most cylinders

- 18) A good engine should produce how much compression during a running (dynamic) compression test? 18) \_\_\_\_\_  
 A) 30-60 PSI                      B) 150-200 PSI                      C) 60-90 PSI                      D) 100-150 PSI
- 19) Cranking vacuum should be \_\_\_\_\_. 19) \_\_\_\_\_  
 A) 6 to 16 inches Hg                      B) 17 to 21 inches Hg  
 C) Over 25 inches Hg                      D) 2.5 inches Hg or higher
- 20) All of the following statements are correct EXCEPT \_\_\_\_\_. 20) \_\_\_\_\_  
 A) Engine degreaser often uses engine heat to dissolve grease.  
 B) Leak detecting dye should be used with a black light.  
 C) It is normal for an engine to stall when sprayed with water.  
 D) Avoid high-pressure rinsing of ignition wires or distributor caps.
- 21) A skewed thermostat means it is \_\_\_\_\_. 21) \_\_\_\_\_  
 A) Missing the thermo wax in the heat sensor  
 B) Not working  
 C) Contaminated with coolant  
 D) Working, but not at the correct temperature
- 22) A defective thermostat can cause the powertrain control module (PCM) to set what diagnostic trouble code (DTC)? 22) \_\_\_\_\_  
 A) P0172                      B) P0128                      C) P0171                      D) P0300

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 23) A replacement plastic intake manifold may have a different design or appearance from the original factory-installed part. 23) \_\_\_\_\_

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- 24) A hybrid electric vehicle has a feature that could allow the engine to start and run without warning. This feature is called \_\_\_\_\_. 24) \_\_\_\_\_  
 A) Self-start                      B) Idle stop                      C) Battery save                      D) False off
- 25) When replacing a timing belt, many experts and vehicle manufacturers recommend that what other part(s) should be replaced? 25) \_\_\_\_\_  
 A) Water pump                      B) Camshaft oil seal(s)  
 C) Tensioner assembly                      D) All of the above
- 26) Coolant drained from the cooling system when replacing a thermostat or water pump should be \_\_\_\_\_. 26) \_\_\_\_\_  
 A) Poured down a toilet                      B) Filtered and reinstalled after the repair  
 C) Reused                      D) Disposed of properly or recycled
- 27) Hybrid electric vehicles usually require special engine oil of what viscosity? 27) \_\_\_\_\_  
 A) SAE 5W-40                      B) SAE 0W-20                      C) SAE 5W-30                      D) SAE 10W-30

- 28) A water pump can fail to provide the proper amount of coolant flow through the cooling system if what has happened? 28) \_\_\_\_\_  
 A) The coolant is leaking from the weep hole  
 B) The impeller blades are worn or slipping on the shaft  
 C) A bearing failure has caused the shaft to become loose  
 D) The bearing is noisy
- 29) The thermostat jiggle valve should be placed \_\_\_\_\_ when installing the new thermostat. 29) \_\_\_\_\_  
 A) Aligned with the timing mark  
 B) Lengthwise  
 C) At the bottom  
 D) At the top
- 30) What can be used to detect a vacuum leak at an intake manifold gasket? 30) \_\_\_\_\_  
 A) Coolant  
 B) Propane  
 C) Spray water  
 D) Dye
- 31) A thermostat can fail in which way? 31) \_\_\_\_\_  
 A) Stuck partially open  
 B) Stuck closed  
 C) Stuck open  
 D) Any of the above
- 32) On some engines equipped with a timing belt, the belt also may drive the \_\_\_\_\_. 32) \_\_\_\_\_  
 A) AC compressor  
 B) Alternator  
 C) Power steering  
 D) Water pump
- 33) Technician A uses a wire brush to remove old gasket material from aluminum engine parts. Technician B uses a plastic or wood scraper on aluminum engine parts. Which technician is correct? 33) \_\_\_\_\_  
 A) Technician A  
 B) Technician B  
 C) Both Technicians A and B  
 D) Neither Technician A nor B
- 34) When torquing intake manifold bolts, what is the proper sequence? 34) \_\_\_\_\_  
 A) From one end to the other end  
 B) From the center to the outer ends  
 C) From both ends, then in towards the center  
 D) The sequence is not important
- 35) A vehicle has set DTC P0172, indicating a lean exhaust and a vacuum leak is suspected. This can be diagnosed by introducing \_\_\_\_\_ around the intake manifold gasket. 35) \_\_\_\_\_  
 A) Rock salt  
 B) Shop air  
 C) Propane  
 D) Sprayed gasoline
- 36) What is the proper tool used to measure valve clearances? 36) \_\_\_\_\_  
 A) Feeler gauge  
 B) Dial gauge  
 C) Micrometer  
 D) Vernier caliper
- 37) When changing a timing belt it is recommended that the \_\_\_\_\_ also be replaced. 37) \_\_\_\_\_  
 A) Front crankshaft seal  
 B) Air filter  
 C) Air pump seal  
 D) Air intake hoses
- 38) Before removing a timing belt what should the technician do? 38) \_\_\_\_\_  
 A) Align the timing marks  
 B) Disconnect the speedometer cable  
 C) Remove the water pump  
 D) Lock the transmission in 1st gear

- 39) An intake manifold gasket has been replaced due to a vacuum leak. Which of the following steps uses a scan tool to complete the job? 39) \_\_\_\_\_
- A) Air cleaner check
  - B) Idle relearn
  - C) Torquing the manifold bolts
  - D) Refilling the cooling system
- 40) The torque specification for many plastic intake manifolds are in what unit? 40) \_\_\_\_\_
- A) Ft-lbs per minute
  - B) Pound-feet
  - C) Lb-ft per second
  - D) Pound-inches