

TEST YOUR AUTOMOTIVE TECHNICAL KNOWLEDGE

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This self-test can help you determine how much you really know about this subject. Questions are written in the ASE style format and are multiple choice.

The answer key is on the last page.

There are also links to related articles on the <https://www.AA1Car.com> website. Good luck!

ENGINE COMPONENTS SELF-TEST

1. The camshafts in a "DOHC" engine are located where?
 - a. Cylinder block
 - b. Cylinder head
 - c. Crankcase
 - d. Intake Manifold
2. Technician A says a "DOHC" engine has two camshafts if it is a four cylinder, and four cams if it is a V6 or a V8.
Technician B says new lifters should always be used when installing a new flat tappet non-roller camshaft.
Who's right?
 - a. Technician A only
 - b. Technician B only
 - c. Both Technician A and B
 - d. Neither one
3. The recommended replacement interval for TIMING BELTS on most late model engines is:
 - a. Every 45,000 miles
 - b. Every 60,000 miles
 - c. Every 100,000 miles
 - d. There is no recommended replacement interval
4. All of the following statements about a timing belt failure are true EXCEPT:
 - a. It will prevent an engine from starting
 - b. It will cause the engine to stop running
 - c. It can result in bent valves on an "interference" engine
 - d. It can increase vehicle emissions
5. The WRIST PINS in an engine do what?
 - a. Attach the crankshaft to the connecting rods
 - b. Attach the connecting rods to the pistons
 - c. Attach the camshaft to the timing gear
 - d. Attach the arm bone to the hand bone

6. TRIMETAL engine bearings have:
- A thin layer of babbitt over a layer of copper/lead on a steel shell
 - A layer of lead over aluminum on a steel shell
 - Three layers of aluminum on a steel shell
 - Three layers of lead on an aluminum shell
7. What is a HYPEREUTECTIC PISTON?
- A high silicon aluminum alloy cast piston
 - A low silicon aluminum alloy cast piston
 - A high silicon aluminum alloy forged piston
 - A low silicon aluminum alloy forged piston
8. A common symptom of worn valve guides and seals is:
- Increased oil consumption
 - Oil fouled spark plugs
 - Heavy carbon buildup on intake valves and intake ports
 - All of the above
9. Technician A says MLS (Multi-Layer Steel) head gasket usually have 6 to 8 layers of embossed steel to improve durability.
Technician B says a leaky head gasket may cause an engine to overheat by leaking coolant into the cylinders or crankcase.
Who's right?
- Technician A only
 - Technician B only
 - Both Technician A and B
 - Neither one
10. A TIMING CHAIN SET for a pushrod V8 engine typically includes:
- New timing chain and camshaft gear
 - New timing chain and crankshaft gear
 - New timing chain, camshaft and crankshaft gears
 - New timing chain and head gasket
11. The following statements about HYDRAULIC VALVE LIFTERS are all TRUE EXCEPT:
- They eliminate the need for periodic valve lash adjustments
 - They are quieter than SOLID lifters
 - They can handle HIGHER engine speeds than SOLID lifters
 - They are used in PUSHROD engines
12. The PUSHRODS are located where inside an engine?
- Between the rocker arm and camshaft
 - Between the rocker arm and valve lifter
 - Between the camshaft and valve retainers
 - Between the rocker arms and valves
13. ROLLER valve lifters do what?
- Reduce valvetrain friction
 - Reduce camshaft friction
 - Transfer motion from the rocker arms to the valves
 - Are only used in OVERHEAD CAM (OHC) engines

14. TOTAL VALVE LIFT (how far the valves open) is a function of what?
- Cam lobe lift plus pushrod length plus rocker arm ratio
 - Cam lobe lift plus pushrod length times rocker arm ratio
 - Cam lobe lift times rocker arm ratio
 - Cam lobe lift divided by rocker arm ratio
15. ANY of the following will INCREASE engine compression EXCEPT:
- Larger combustion chambers in the cylinder head
 - Boring the cylinders to oversize
 - Replacing flat top pistons with domed pistons
 - Milling the cylinder head
16. Technician A says resurfacing or milling a cylinder head on an Overhead Cam (OHC) engine has NO EFFECT on valve timing.
Technician B says a seized or broken camshaft in an Overhead Cam (OHC) engine often means the head has warped as a result of the engine overheating.
Who is right?
- Technician A only
 - Technician B only
 - BOTH Technician A and B
 - Neither Technician A nor B
17. How does oil flow inside an engine?
- From the oil filter to the oil pump to the crankshaft and valvetrain
 - From the oil pan to the oil filter to the oil pump to the rest of the engine
 - From the oil pan to the oil pump to the engine then back through the filter
 - From the oil pan to the oil pump to the oil filter to the crankshaft and valvetrain
18. A "Rule of Thumb" for GOOD OIL PRESSURE is how many Pounds per engine RPM?
- 1 PSI per 1000 RPM
 - 2 PSI per 1000 RPM
 - 5 PSI per 1000 RPM
 - 7 to 10 PSI per 1000 RPM
19. Most pistons have THREE rings . What does the 2nd or middle ring do?
- Functions as a secondary compression ring
 - Functions as a secondary oil control ring
 - Functions as both a secondary compression and oil control ring
 - Functions as the primary oil control ring
20. RESURFACING a head on a PUSHROD engine does all of the following EXCEPT:
- Reduces valve-to-piston clearance
 - Lowers compression
 - Changes intake manifold alignment on a V8 or V6 engine
 - Does not change ignition timing

21. Technician A says an engine with TIGHTER crankshaft bearing clearances generally requires a THICKER or HIGHER VISCOSITY motor oil.

Technician B says LOW VISCOSITY motor oils such as 0W-20 and 5W-20 are used in late model engines because they have LOOSER bearing clearances to reduce friction.

Who is right?

- a. Technician A only
- b. Technician B only
- c. BOTH Technician A and B
- d. Neither Technician A nor B

22. VARIABLE VALVE TIMING (vvt) does what?

- a. Changes how far the valves open
- b. Changes when the valves open
- c. Changes how quickly the valves open
- d. All of the above

23. The CAMSHFT in a PUSHROD engine rotates at what speed?

- a. Same speed as the crankshaft
- b. Half the speed of the crankshaft
- c. Twice the speed of the crankshaft
- d. The speed varies depending on RPM

24. The CAMSHAFTs in DUAL OVERHEAD CAM (DOHC) engines rotate at what speed?

- a. Same speed as the crankshaft
- b. Half the speed of the crankshaft
- c. Twice the speed of the crankshaft
- d. The speed varies depending on RPM

25. Technician A says high mileage valve springs should always be replaced when an engine or cylinder head is being rebuilt.

Technician B says intake valves fail more often than exhaust valves in most engines.

Who is right?

- a. Technician A only
- b. Technician B only
- c. BOTH Technician A and B
- d. Neither Technician A nor B

(Answer Key on Next Page)

ANSWER KEY

1B, 2C, 3C, 4D, 5B, 6A, 7A, 8D, 9B, 10C, 11C, 12B, 13B, 14C, 15A, 16B, 17D, 18D, 19C, 20B, 21D, 22B, 23B, 24B, 25A



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