

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) Describe the operation of a hydraulic lifter.

2) What is meant by an “interference” engine?

3) How does variable valve timing help improve engine operation and reduce emissions?

4) How is the camshaft driven by the crankshaft?

5) Explain why the lift and duration and lobe center dimension determine the power characteristics of the engine.

Answer Key

Testname: ENGINES9_SHORT 28

1) A hydraulic lifter uses a hollow cylinder body enclosing a closely fit hollow plunger; check valve and a pushrod cup. Engine oil is trapped between the body and the plunger to maintain zero lash (valve train clearance).

Page Ref: 408

2) On an interference engine, a broken timing belt causes some of the valves that are open to hit the pistons, causing major engine damage.

Page Ref: 398

3) Varying the exhaust and/or the intake camshaft position allows for reduced exhaust emissions and improved performance. Most systems use engine oil to rotate the camshaft, using a pulse-width modulated signal to the control solenoid. The PCM uses the camshaft position (CMP) sensor to monitor the camshaft position.

Page Ref: 411-416

4) The camshaft is driven by:

- Timing gears
- Timing chains
- Timing belts

The gear or sprocket on the camshaft has twice as many teeth, or notches, as the one on the crankshaft. This results in two crankshaft revolutions for each revolution of the camshaft. The camshaft turns at one-half the crankshaft speed in all four-stroke cycle engines.

Page Ref: 393

5) The more air and fuel an engine can take in during the intake strokes, the greater the power. If lift, duration or overlap are excessive, the performance of the engine is reduced at low engine speeds and fuel economy is hurt.

Page Ref: 406