

Name \_\_\_\_\_

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

- 1) Camshafts turn at which of these? 1) \_\_\_\_\_  
A) Twice crankshaft speed  
B) Crankshaft speed  
C) 1/2 crankshaft speed  
D) 1/4 crankshaft speed
- 2) Flat-bottom valve lifters rotate during operation because of the \_\_\_\_\_ of the camshaft. 2) \_\_\_\_\_  
A) taper of the lobe  
B) thrust plate  
C) chain tensioner  
D) bearings
- 3) A DOHC V-6 has how many camshafts? 3) \_\_\_\_\_  
A) 4  
B) 3  
C) 2  
D) 1
- 4) On a vehicle with cylinder deactivation, the valves are kept closed by deactivating the \_\_\_\_\_. 4) \_\_\_\_\_  
A) valve lifter  
B) cam lobe  
C) valve stem  
D) valve spring
- 5) The maximum total indicator runout (TIR) of a camshaft should be less than \_\_\_\_\_. 5) \_\_\_\_\_  
A) 0.002 in.  
B) 0.006 in.  
C) 0.004 in.  
D) 0.008 in.
- 6) Many technicians always use new pushrods because \_\_\_\_\_. 6) \_\_\_\_\_  
A) they are less expensive to buy than clean  
B) all dirt cannot be cleaned out from the hollow center  
C) they wear at both ends  
D) pushrods shrink in length if removed from an engine
- 7) If the exhaust valve opens at 57° BBDC (before bottom dead center) and closes at 29° after TDC (top dead center), what is the exhaust valve duration in degrees? 7) \_\_\_\_\_  
A) 86  
B) 209  
C) 237  
D) 266

- 8) Variable cam timing technology is used on the exhaust cam only. 8) \_\_\_\_\_  
A) True  
B) False
- 9) The intake valve opens at 39° BTDC (before top dead center) and closes at 71° ABDC (After bottom dead center). The exhaust valve opens at 78° BBDC (before bottom dead center) and closes at 47° ATDC (after top dead center). Which of these is correct regarding this cam timing? 9) \_\_\_\_\_  
A) Intake valve duration is 110°  
B) Exhaust valve duration is 125°  
C) Overlap is 86°  
D) Both A and B
- 10) Hydraulic lifters or hydraulic lash adjusters (HLA) may not bleed down properly and could cause an engine miss if \_\_\_\_\_. 10) \_\_\_\_\_  
A) the engine oil is 1 quart low  
B) the wrong API-rated engine oil is used  
C) the wrong SAE-rated engine oil is used  
D) both A and B