

Name \_\_\_\_\_

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

- 1) If the exhaust valve opens at  $57^\circ$  before BDC (before dead center) and closes at  $29^\circ$  after TDC (top dead center), what is the exhaust valve duration in degrees? 1) \_\_\_\_\_
  - A) 86
  - B) 209
  - C) 237
  - D) 266
  
- 2) The camshaft also drives the \_\_\_\_\_ on some engines. 2) \_\_\_\_\_
  - A) Oil pump
  - B) Distributor (if equipped)
  - C) Both A and B
  - D) Neither A nor B
  
- 3) Flat-bottom valve lifters rotate during operation because of the \_\_\_\_\_ of the camshaft. 3) \_\_\_\_\_
  - A) Taper of the lobe
  - B) Thrust plate
  - C) Chain tensioner
  - D) Bearings
  
- 4) What determines the amount of valve overlap? 4) \_\_\_\_\_
  - A) Total lift in degrees
  - B) Cam lobe accuracy
  - C) Camshaft design
  - D) Timing gears or chain
  
- 5) Hydraulic lifters or hydraulic lash adjusters (HLA) may not bleed down properly and could cause an engine miss if \_\_\_\_\_. 5) \_\_\_\_\_
  - 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

6) Identify this component.

6) \_\_\_\_\_



- A) Oil pump
- B) Roller lifter
- C) Flat lifter
- D) Intake check valve

7) The timing chain on a cam-in-block engine has about 9/16" slack in the chain. What should the technician do?

7) \_\_\_\_\_

- A) Tighten the chain at the adjusting link
- B) Replace the timing chain
- C) Replace the timing chain and gears
- D) Nothing, the chain is OK

8) Which timing chain type is also called a "silent chain"?

8) \_\_\_\_\_

- A) Roller
- B) Morse
- C) Flat link
- D) Both B and C

9) A camshaft is hardened during manufacturing to a typical depth of \_\_\_\_\_ inch.

9) \_\_\_\_\_

- A) 1/8
- B) 0.001 to 0.006
- C) 0.42 to 0.60
- D) None of these

10) Hydraulic valve lifters can make a ticking noise when the engine is running if \_\_\_\_\_.

10) \_\_\_\_\_

- A) Valve lash is too close
- B) Valve lash is too loose
- C) Lobe centerline is over 110°
- D) Both A and C

## Answer Key

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1) D

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2) C

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3) A

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4) C

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5) C

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6) B

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7) C

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8) D

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9) B

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10) B

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