Exams developed in partnership with Cengage Learning.

Book Information

Modern Automotive Technology

Author: James E. Duffy
8th Edition
©2014 Published

Exam Topics

I. INTRODUCTION TO AUTOMOTIVE TECHNOLOGY
   • The Automobile
   • Automotive Careers and ASE Certification
   • Basic Hand Tools
   • Power Tools and Equipment
   • Auto Shop Safety
   • Automotive Measurement and Math
   • Service Information and Work Orders
   • Fasteners, Gaskets, Seals, and Sealants
   • Vehicle Maintenance, Fluid Service, and Recycling
   • Career Success

II. ENGINE TECHNOLOGY
   • Engine Fundamentals
   • Engine Design Classifications
   • Engine Top End Construction
   • Engine Bottom End Construction
   • Engine Front End Construction
   • Engine Size and Performance Measurements

III. FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS
   • Electrical Principles
   • Circuit Types and Ohm’s Law
   • Electrical and Electronic Components
   • Electrical Tools and Test Equipment
   • Wiring Diagrams and Wiring Repairs
   • Basic Electrical Tests
IV. COMPUTER CONTROL TECHNOLOGY
- Computer System Fundamentals
- On-Board Diagnostics and Scan Tools
- Computer System Service

V. ELECTRICAL AND ELECTRONIC SYSTEMS TECHNOLOGY
- Hybrid Drive Technology
- Hybrid Drive Systems Diagnosis and Repair
- 12-Volt and HV Battery Technology
- 12-Volt and HV Battery Service
- Starting System Technology
- Starting System Diagnosis, Testing, and Repair
- Charging System Technology
- Charging System Diagnosis, Testing, and Repair
- Ignition System Technology
- Ignition System Diagnosis, Testing, and Repair
- Lights, Instrumentation, Wipers, and Horns—Operation and Service
- Sound Systems and Power Accessories—Operation and Service
- Security and Navigation Systems—Operation and Service

VI. FUEL, EXHAUST, AND INDUCTION SYSTEM TECHNOLOGY
- Automotive Fuels, Combustion Efficiency
- Fuel Tanks, Pumps, Lines, and Filters
- Gasoline Injection Fundamentals
- Gasoline Injection Diagnosis, Testing, and Repair
- Diesel Injection Fundamentals
- Diesel Injection Diagnosis, Testing, and Repair
- Exhaust Systems—Construction, Operation, and Repair
- Turbochargers and Superchargers—Construction, Operation, and Repair

VII. COOLING AND LUBRICATION SYSTEM TECHNOLOGY
- Cooling System Technology
- Cooling System Diagnosis, Testing, and Repair
- Lubrication System Technology
- Lubrication System Diagnosis, Testing, and Repair

VIII. EMISSION CONTROL SYSTEM TECHNOLOGY
- Emission Control System Technology
- Emission Control System Diagnosis, Testing, and Repair

IX. ENGINE TROUBLESHOOTING AND PERFORMANCE
- Engine Performance and Driveability
- Advanced Diagnostics
- Engine Tune-Up
X. ENGINE SERVICE AND REPAIR
   • Engine Mechanical Problems
   • Engine Removal, Disassembly, and Cleaning
   • Engine Short Block Rebuilding
   • Engine Top End Rebuilding
   • Engine Front End Service
   • Engine Reassembly, Installation, and Break-In

XI. DRIVE TRAIN AND AXLE TECHNOLOGY
   • Clutch Technology
   • Clutch Diagnosis, Service, and Repair
   • Manual Transmission Technology
   • Manual Transmission Diagnosis, Service, and Repair
   • Automatic Transmission Technology
   • Automatic Transmission Diagnosis, Service, and Repair
   • Drive Shaft and Transfer Case Technology
   • Drive Shaft and Transfer Case Diagnosis, Service, and Repair
   • Differential and Rear Drive Axle Technology
   • Differential and Rear Drive Axle Diagnosis, Service, and Repair
   • Transaxle and CV-Axle Technology
   • Transaxle and CV-Axle Diagnosis, Service, and Repair
   • Hybrid Transmission—Construction, Operation, and Repair

XII. SUSPENSION AND STEERING TECHNOLOGY
   • Tire, Wheel, and Wheel Bearing Fundamentals
   • Tire, Wheel, and Wheel Bearing Diagnosis, Service, and Repair
   • Suspension System Technology
   • Suspension System Diagnosis, Service, and Repair
   • Steering System Technology
   • Steering System Diagnosis, Service, and Repair
   • Wheel Alignment

XIII. BRAKE SYSTEM TECHNOLOGY
   • Brake System Fundamentals
   • Brake System Diagnosis, Service, and Repair
   • Anti-Lock Brakes, Traction, and Stability Control—Operation and Repair

XIV. HEATING AND AIR CONDITIONING TECHNOLOGY
   • Heating and Air Conditioning Fundamentals
   • Heating and Air Conditioning Diagnosis, Service, and Repair

XV. SAFETY SYSTEMS AND FUTURE TECHNOLOGY
   • Restraint System Fundamentals
   • Restraint System Diagnosis and Repair
   • New and Future Technologies
Sample Questions

1. A vehicle is brought into the shop with a slipping clutch. Technician A says that the clutch is part of the drive train. Technician B says that the clutch is part of the suspension system. Who is correct?
   a. A only.
   b. B only.
   c. Both A and B.
   d. Neither A nor B.

2. When the internal body structure of a vehicle is used as its frame, it is called:
   a. unibody construction.
   b. body-frame construction.
   c. integral construction.
   d. body-over-frame construction.

3. The _____ controls the opening of engine’s valves.
   a. camshaft
   b. crankshaft
   c. valve springs
   d. combustion chamber

4. In modern gasoline injection systems, where does the fuel injector spray gasoline?
   a. Top of the intake manifold.
   b. On the intake manifold.
   c. Into the intake port.
   d. Into the combustion chamber.

5. All of the following are major components in the computer system except:
   a. calipers.
   b. sensors.
   c. actuators.
   d. computer.