Automotive Electrical and Engine Performance 9th Edition
Chapter 39 – Turbocharging and Supercharging
Multiple Choice Questions Quiz A

1. What is the primary advantage of forced induction in an engine?

a) Increases air-fuel charge density for higher power output

b) Reduces engine temperature

c) Decreases exhaust emissions

d) Prolongs engine oil life

2. Technician A states that superchargers are generally more efficient than turbochargers at high RPM. Technician B says turbochargers do not draw power directly from the engine. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technician A and Technician B

d) Neither Technician A nor B

3. Which of the following best describes the concept of “volumetric efficiency” in an engine?

a) Ratio of fuel burned per cycle

b) Measure of how well an engine can fill its cylinders with air

c) Pressure difference between intake and exhaust

d) Cooling capacity of the intake manifold

4. What role does the wastegate play in a turbocharged engine system?

a) Bypasses intake air to control temperature

b) Prevents excessive exhaust gas flow into the turbo

c) Vents air pressure to reduce intake manifold temperatures

d) Limits boost pressure by redirecting exhaust gases

5. The effective compression ratio in a boosted engine is primarily affected by:

a) Intake air temperature

b) Boost pressure from forced induction

c) Exhaust gas velocity

d) Valve timing adjustments

6. Which type of supercharger is commonly known as a positive displacement type?

a) Centrifugal

b) Variable nozzle

c) Vane-type

d) Roots-type

7. Technician A says that intercoolers are used to reduce intake air temperature in turbocharged engines. Technician B says intercoolers lower exhaust gas temperatures. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technician A and Technician B

d) Neither Technician A nor B

8. In a turbocharger system, what is the purpose of a blow-off valve (BOV)?

a) Controls exhaust gas flow to the turbo

b) Vents excess intake pressure during throttle closures

c) Increases boost pressure in high-demand situations

d) Provides additional lubrication to the turbocharger shaft

9. Which measurement is typically used to express boost levels in a forced induction system?

a) Volts

b) Degrees Celsius

c) PSI

d) Inches of vacuum

10. A twin-screw supercharger differs from a centrifugal supercharger in that it:

a) Is belt-driven, while centrifugal superchargers are exhaust-driven

b) Compresses air between its rotors, creating instantaneous boost

c) Has no bypass valve for boost control

d) Operates at the same speed as engine RPM

Automotive Electrical and Engine Performance 9th Edition
Chapter 39 – Turbocharging and Supercharging
Answer Key Quiz A

Correct Answers:

1. a

2. b

3. b

4. d

5. b

6. d

7. a

8. b

9. c

10. b