1. Which of the following is a method of forced induction used to increase engine power?
a) Direct injection
b) Carburetion
c) Supercharging
d) Valve timing

Answer: c) Supercharging
Explanation: Supercharging is a method of forced induction where air is compressed and forced into the engine cylinders, allowing more fuel to be burned and increasing power output.

2. What is the primary purpose of turbocharging in an engine?
a) To reduce exhaust emissions
b) To improve fuel efficiency
c) To increase engine power
d) To decrease engine noise

Answer: c) To increase engine power
Explanation: Turbocharging increases engine power by using exhaust gases to spin a turbine connected to a compressor, which forces more air into the engine, allowing for more fuel to be burned and increasing power output.

3. Which of the following engine modifications is commonly done for supercharging?
a) Installing a smaller fuel tank
b) Upgrading the exhaust system
c) Adding an intercooler
d) Decreasing compression ratio

Answer: d) Decreasing compression ratio
Explanation: Decreasing the compression ratio is often necessary for supercharging to prevent knocking and detonation, allowing for higher boost pressures without damaging the engine.

4. In a two-stroke engine, how does supercharging differ from a four-stroke engine?
a) Supercharging is not possible in two-stroke engines
b) Supercharging in two-stroke engines is typically achieved through a blower
c) Two-stroke engines do not require supercharging
d) Two-stroke engines use turbocharging instead of supercharging

Answer: b) Supercharging in two-stroke engines is typically achieved through a blower
Explanation: Two-stroke engines often use a blower or scavenging system for supercharging, as they lack the separate intake and exhaust strokes of a four-stroke engine.

5. What is the role of microprocessor control in supercharging?
a) To regulate the fuel injection timing
b) To adjust the ignition timing
c) To control the boost pressure
d) To monitor exhaust emissions

Answer: c) To control the boost pressure
Explanation: Microprocessor control is used in supercharging systems to regulate the boost pressure, ensuring optimal performance and preventing over-boost conditions that could damage the engine.

6. Which component is crucial for cooling in both spark ignition (SI) and compression ignition

(CI) engines?
a) Intercooler
b) Radiator
c) Turbocharger
d) Thermostat

Answer: b) Radiator
Explanation: The radiator is responsible for cooling the engine coolant, which in turn helps to regulate the temperature of both spark ignition (SI) and compression ignition (CI) engines.

7. What is the function of an intercooler in a supercharged engine?
a) To reduce intake air temperature
b) To increase exhaust gas flow
c) To regulate fuel injection
d) To improve turbocharger efficiency

Answer: a) To reduce intake air temperature
Explanation: An intercooler cools the compressed air before it enters the engine, increasing its density and allowing for more oxygen to be available for combustion, thereby improving engine efficiency and power output.

8. Which lubrication system is commonly used in turbocharged engines?
a) Wet sump lubrication
b) Dry sump lubrication
c) Splash lubrication
d) Pressure-fed lubrication

Answer: b) Dry sump lubrication
Explanation: Dry sump lubrication systems are often used in turbocharged engines to ensure adequate lubrication under high-performance conditions and to prevent oil starvation, which can occur due to the increased G-forces experienced by the engine.

9. How does supercharging affect engine efficiency?
a) It decreases efficiency by increasing engine load
b) It has no effect on engine efficiency
c) It increases efficiency by improving combustion
d) It decreases efficiency by adding mechanical complexity

Answer: c) It increases efficiency by improving combustion
Explanation: Supercharging increases engine efficiency by allowing more air and fuel to be burned in each combustion cycle, thereby extracting more power from the same displacement engine.

10. What is the main advantage of turbocharging over supercharging?
a) Turbocharging is less expensive
b) Turbocharging provides smoother power delivery
c) Turbocharging does not require engine modifications
d) Turbocharging is more efficient

Answer: d) Turbocharging is more efficient
Explanation: Turbocharging is generally more efficient than supercharging because it utilizes otherwise wasted exhaust energy to drive the turbine, whereas supercharging relies on engine power to drive the compressor.

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