

Name \_\_\_\_\_

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1) How does the bypass valve work on a supercharged engine?

---

---

---

2) What are the advantages and disadvantages of supercharging?

---

---

---

3) What are the reasons why supercharging increases engine power

---

---

---

4) What are the advantages and disadvantages of turbocharging?

---

---

---

5) What turbocharger control valves are needed for proper engine operation?

---

---

---

## Answer Key

Testname: ENGINEPERF5\_SHORT12

- 1) A bypass valve is used on many superchargers to allow intake air to flow directly into the intake manifold bypassing the supercharger. This bypass valve improves fuel economy under part-throttle conditions, where the boost from the supercharger is not needed.  
Page Ref: 192
- 2) A supercharger is able to boost engine power at all engine speeds and loads without a delay or lag. However, the supercharger itself takes power from the engine to operate, thereby reducing its efficiency.  
Page Ref: 192
- 3) Superchargers increase engine power by increasing the air-fuel charge density, resulting in a more powerful combustion in the cylinder.  
Page Ref: 190
- 4) A turbocharger is more efficient than a supercharger because it uses the waste heat energy in the exhaust to provide boost. However, there is a delay or lag from the time the driver depresses the accelerator and when boost occurs.  
Page Ref: 193-195
- 5) A typical turbocharger system uses a wastegate to control (limit) the maximum boost, as well as a relief valve, such as a compression bypass valve or blow-off valve to release pressure in the intake system when the throttle is closed.  
Page Ref: 195