

What is Downhill Braking?

Worksheet

Downhill braking means using engine resistance by downshifting to lower gears and applying steady, moderate braking pressure to control descent speed safely without overheating the braking system.

Questions

1. On a long downhill, which technique prevents brake fade?
 - A) Continuous hard braking
 - B) Downshifting + steady light braking
 - C) Neutral coasting
 - D) Rapid on-off braking
2. Ideal gear for steep mountain descent?
 - A) Neutral
 - B) Gear 1
 - C) Gear 2-3
 - D) Highest gear
3. Brake temperature rising—what to do?
 - A) Press harder
 - B) Downshift + ease speed
 - C) Coast in neutral
 - D) Emergency stop
4. Benefits of engine braking?
 - A) Increases fuel use
 - B) Reduces brake wear
 - C) Makes steering harder
 - D) Warms up brakes
5. A truck descending a 6% grade for 2 km. Use downshifting strategy.
6. Speed is 80 km/h on a steep mountain road. What's the safe braking approach?
7. Brake temperature rising during descent. What should the driver do?
8. Define: What is downhill braking?
9. Define: Why avoid continuous hard braking downhill?
10. Define: Which gear for steep downhill?

Answer Key

1. B) Downshifting + steady light braking — Engine braking + light consistent braking avoids thermal damage.
2. C) Gear 2-3 — Provides strong engine resistance without stalling or over-revving.
3. B) Downshift + ease speed — Lower gear gives drag; reduce speed to cool the system.
4. B) Reduces brake wear — Distributes work across the engine, saving the braking system.
5. Downshift to gear 2-3, apply steady light braking, monitor temperature; avoid continuous hard braking to prevent fade.
6. Downshift early to gear 2, use engine resistance to slow naturally, apply gentle foot brake intermittently.
7. Immediately downshift to a lower gear, ease off the accelerator, reduce speed gradually; allow air to cool the brakes.
8. Using engine resistance and lower gears to control descent speed safely.
9. Causes brake fade and overheating; damages braking system.
10. Gear 2-3 (manual) for engine braking; let low gear provide resistance.

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