

Module 5: Advanced Topics and Case Studies

Lecture 21: Autonomous & Connected Vehicles

Section 7: Quiz - Answers

1. What is the main difference between autonomous and connected vehicles?

- A) Autonomous vehicles rely on communication between vehicles
- B) Connected vehicles drive themselves without human input
- C) Autonomous vehicles make decisions independently, connected vehicles rely on communication
- D) Both require no human driver

✓ **Correct Answer: C**

✗ **Explanation:** Autonomous vehicles can operate without external communication, while connected vehicles rely on sharing information with other vehicles/infrastructure.

2. Which of the following is NOT a sensor commonly used in autonomous vehicles?

- A) LiDAR
- B) Radar
- C) Sonar
- D) Thermometer

✓ **Correct Answer: D**

✗ **Explanation:** Thermometers are not used in AV navigation. LiDAR, radar, and sonar help detect surroundings and obstacles.

3. What does V2X stand for in connected vehicle technology?

- A) Vehicle-to-Exit
- B) Vehicle-to-Everything
- C) Vehicle-to-Xenon
- D) Vehicle-to-Extra

✓ **Correct Answer: B**

✗ **Explanation:** V2X means “Vehicle-to-Everything,” including vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), and more.

4. What is one key benefit of connected vehicles (CVs)?

- A) Complete independence from internet connectivity
- B) Improved social interaction between drivers
- C) Real-time information sharing to avoid collisions
- D) Ability to fly over congested roads

✅ **Correct Answer: C**

🔴 **Explanation:** Connected vehicles share real-time data that improves safety and traffic coordination.

5. Which of these is a potential ethical concern with autonomous vehicles?

- A) Too much data being shared with passengers
- B) Deciding who is responsible for cleaning the car
- C) Making decisions during unavoidable crashes
- D) Network bandwidth usage

✅ **Correct Answer: C**

🔴 **Explanation:** AVs raise ethical dilemmas in life-or-death decisions when accidents are unavoidable.

6. What challenge do both AVs and CVs face in poor weather conditions?

- A) Excessive fuel usage
- B) Sensor failure or reduced visibility
- C) Passenger refusal to ride
- D) Legal parking

✅ **Correct Answer: B**

🔴 **Explanation:** Sensors like cameras and LiDAR struggle with snow, fog, or rain, affecting AV perception.

7. How could AVs impact urban transport systems positively?

- A) Reduce road capacity
- B) Increase travel times
- C) Improve traffic efficiency and safety
- D) Promote private vehicle ownership

✓ **Correct Answer: C**

✚ **Explanation:** AVs can lead to smoother flows, fewer accidents, and better use of road space.

8. Which infrastructure upgrade is essential for connected vehicle communication?

- A) Wider roads
- B) 5G and roadside communication units
- C) Electric charging stations only
- D) More toll booths

✓ **Correct Answer: B**

✚ **Explanation:** CVs depend on low-latency networks like 5G and sensors on roads to communicate effectively.

9. What is a common public concern regarding AV adoption?

- A) Cars being too quiet
- B) Loss of driver's licenses
- C) Lack of trust in machine decision-making
- D) Increased walking

✓ **Correct Answer: C**

✚ **Explanation:** Many people are hesitant to trust a machine to drive them, especially in complex situations.

10. Which vehicle type requires external information from its environment to function optimally?

- A) Manual cars
- B) Autonomous vehicles only
- C) Connected vehicles
- D) None of the above

✓ **Correct Answer: C**

✚ **Explanation:** Connected vehicles rely on data from other vehicles, infrastructure, and systems to improve decision-making and safety.