

1. Which of the following is not a type of automobile emission?

- a) Hydrocarbons (HC)
- b) Carbon Dioxide (CO₂)
- c) Nitrous Oxide (N₂O)
- d) Sulfur Dioxide (SO₂)

Answer: b) Carbon Dioxide (CO₂)

Explanation: Carbon dioxide is a greenhouse gas emitted by automobiles, but it is not considered a primary pollutant directly emitted from vehicle engines.

2. What is the primary mechanism of hydrocarbon (HC) formation in a spark ignition (SI) engine?

- a) Incomplete combustion of fuel
- b) Exhaust gas recirculation
- c) Catalytic conversion
- d) Fuel evaporation

Answer: a) Incomplete combustion of fuel

Explanation: Hydrocarbons (HC) in automobile emissions primarily result from fuel that hasn't burned completely during the combustion process in the engine.

3. Which of the following factors does not affect exhaust emissions from automobiles?

- a) Engine temperature
- b) Fuel quality
- c) Vehicle weight
- d) Tire pressure

Answer: d) Tire pressure

Explanation: Tire pressure doesn't directly affect exhaust emissions. Engine temperature, fuel quality, and vehicle weight can all influence emissions.

4. What is the main component responsible for evaporative emissions in automobiles?

- a) Carbon monoxide (CO)
- b) Nitrogen oxides (NO_x)
- c) Volatile organic compounds (VOCs)
- d) Particulate matter (PM)

Answer: c) Volatile organic compounds (VOCs)

Explanation: Evaporative emissions from automobiles primarily consist of volatile organic compounds (VOCs) evaporating from the fuel system and other vehicle components.

5. Crankcase emissions in automobiles primarily result from:

- a) Fuel combustion in the engine cylinders
- b) Engine oil evaporation
- c) Exhaust gas recirculation
- d) Catalytic conversion

Answer: b) Engine oil evaporation

Explanation: Crankcase emissions occur when engine oil evaporates and is released from the engine crankcase into the atmosphere.

6. What is the main cause of smoke formation in compression ignition (CI) engine emissions?

- a) Incomplete combustion of fuel
- b) Overly rich fuel mixture

- c) Exhaust gas recirculation
- d) Fuel injection timing

Answer: a) Incomplete combustion of fuel

Explanation: Smoke in CI engine emissions primarily results from incomplete combustion of fuel, leading to the emission of particulate matter.

7. Which of the following factors does not affect the formation of smoke in CI engine emissions?

- a) Fuel quality
- b) Engine temperature
- c) Exhaust gas recirculation
- d) Tire pressure

Answer: d) Tire pressure

Explanation: Tire pressure doesn't directly affect the formation of smoke in CI engine emissions. Factors like fuel quality, engine temperature, and exhaust gas recirculation can influence smoke production.

8. Unburned hydrocarbons (UHC) in CI engine emissions primarily result from:

- a) Incomplete combustion of fuel
- b) High engine compression ratio
- c) Lean fuel-air mixture
- d) Catalytic conversion

Answer: a) Incomplete combustion of fuel

Explanation: Unburned hydrocarbons (UHC) are formed in CI engine emissions when fuel

does not combust completely during the combustion process.

9. Carbon monoxide (CO) in automobile emissions primarily results from:

- a) Incomplete combustion of fuel
- b) Exhaust gas recirculation
- c) Catalytic conversion
- d) Fuel evaporation

Answer: a) Incomplete combustion of fuel

Explanation: Carbon monoxide (CO) is produced in automobile emissions when fuel combustion is incomplete, leading to the formation of this poisonous gas.

10. What is the primary source of nitrogen oxides (NO_x) in automobile emissions?

- a) Fuel combustion
- b) Tire wear
- c) Engine oil evaporation
- d) Exhaust gas recirculation

Answer: a) Fuel combustion

Explanation: Nitrogen oxides (NO_x) primarily result from high-temperature combustion processes in automobile engines, where nitrogen and oxygen in the air react.

11. Smog formation is primarily attributed to the presence of which pollutant in automobile emissions?

- a) Carbon dioxide (CO₂)
- b) Volatile organic compounds (VOCs)
- c) Particulate matter (PM)

d) Nitrogen oxides (NO_x)

Answer: d) Nitrogen oxides (NO_x)

Explanation: Nitrogen oxides (NO_x) contribute to the formation of smog when they react with volatile organic compounds (VOCs) in the presence of sunlight, forming ground-level ozone and other pollutants.

12. How do diesel emissions generally compare to petrol emissions in terms of particulate matter (PM) production?

- a) Diesel emissions produce more PM than petrol emissions
- b) Petrol emissions produce more PM than diesel emissions
- c) Diesel and petrol emissions produce equal amounts of PM
- d) PM production is unrelated to the type of fuel used

Answer: a) Diesel emissions produce more PM than petrol emissions

Explanation: Diesel engines typically produce higher levels of particulate matter (PM) compared to petrol engines due to differences in combustion processes and fuel properties.

13. Which of the following is not a factor affecting exhaust emissions from automobiles?

- a) Engine temperature
- b) Altitude
- c) Vehicle speed
- d) Paint color

Answer: d) Paint color

Explanation: Paint color doesn't directly affect exhaust emissions from automobiles. Factors like engine temperature, altitude, and vehicle speed can influence emissions.

14. What role does exhaust gas recirculation (EGR) play in reducing automobile emissions?

- a) It increases the production of nitrogen oxides (NO_x)
- b) It reduces the production of carbon monoxide (CO)
- c) It enhances fuel evaporation
- d) It decreases the formation of hydrocarbons (HC)

Answer: b) It reduces the production of carbon monoxide (CO)

Explanation: Exhaust gas recirculation (EGR) reduces automobile emissions by recirculating a portion of exhaust gas back into the engine cylinders, which helps lower combustion temperatures and reduce the production of carbon monoxide (CO).

15. Which of the following pollutants is not a primary emission from automobiles?

- a) Particulate matter (PM)
- b) Carbon monoxide (CO)
- c) Ozone (O₃)
- d) Nitrogen oxides (NO_x)

Answer: c) Ozone (O₃)

Explanation: While ozone (O₃) can be a secondary pollutant formed from reactions involving automobile emissions, it is not directly emitted from vehicle engines as a primary pollutant.

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