GENERAL

automobile engineering 2 mark questions and answers

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Automobile Engineering 2 Mark Questions and Answers: A Complete Guide for Exam Success

Preparing for competitive exams in the field of automobile engineering often involves mastering a wide range of concepts and being able to answer concise, focused questions. Among these, **2 mark questions** play a pivotal role: they test your ability to convey core ideas succinctly while demonstrating a solid grasp of fundamentals. Whether you are a student tackling the Indian engineering entrance exam, a professional preparing for certification, or a self learner aiming to sharpen your knowledge, this article offers a comprehensive resource of automobile engineering 2 mark questions and answers.

We'll explore why 2 mark questions matter, the typical topics they cover, sample questions across key domains, and effective study strategies. By the end, you'll feel confident tackling these bite size questions and using them to build a strong foundation for more complex problem solving.

Why 2 Mark Questions Matter in Automobile Engineering Exams

In many engineering entrance tests and professional certifications, the exam structure is divided into three categories: 1 mark, 2 mark, and 3 or 4 mark questions. The 2 mark section is crucial for several reasons:

- High Yield per Question: Each 2 mark question carries double the weight of a 1 mark question, making them an efficient way to boost your score.
- Conceptual Depth: These questions usually require a brief explanation or definition, ensuring you understand the core principle rather than just memorizing facts.
- Time Management: Because they are shorter than long answer questions, answering them quickly and accurately can save valuable exam time.
- Assessment of Understanding: 2 mark questions test the ability to articulate concepts clearly—a skill essential for both exams and real world engineering communication.

By mastering 2 mark questions, you reinforce key concepts and create a solid knowledge base that will support you in tackling higher level problems.

Typical Topics Covered in Automobile Engineering 2 Mark Questions

Automobile engineering is a multidisciplinary field. 2 mark questions often span the following domains:

1. Engine Technology & Thermodynamics
2. Vehicle Dynamics & Control Systems
3. Materials & Manufacturing Processes
4. Automotive Electronics & Instrumentation
5. Safety & Emission Standards
6. Design & Ergonomics
7. Powertrain & Hybrid Systems
8. Transmission & Drivetrain
9. Fuel Systems & Efficiency
10. Testing & Quality Assurance

Each topic contains core concepts that can be distilled into concise, answerable questions. Below, we provide a curated list of sample 2 mark questions and their concise answers.

Sample 2 Mark Questions & Answers

Below are grouped by topic, each followed by a clear, brief answer. Use these as study prompts or to create flashcards.

1. Question: What is the function of the intake valve in an internal combustion engine?
2. Answer: The intake valve opens to allow the air fuel mixture to enter the combustion chamber during the intake stroke and closes to prevent backflow during compression.
3. Question: Define “compression ratio” and explain its importance.
4. Answer: Compression ratio is the ratio of the total cylinder volume when the piston is at the bottom dead center to the volume when the piston is at the top dead center. A higher ratio improves thermal efficiency but increases the risk of knocking.
5. Question: What is the purpose of an intercooler in a turbocharged engine?
6. Answer: An intercooler cools the compressed intake air, increasing its density and reducing the likelihood of detonation, thereby improving power output.
7. Question: Explain the term “fuel injection” in the context of modern engines.
8. Answer: Fuel injection delivers precise amounts of fuel directly into the combustion chamber or intake port, enhancing efficiency, power, and emissions control compared to carburetion.

1. Question: What is the role of the anti roll bar?
2. Answer: An anti roll bar reduces body roll during cornering by transferring load between wheels, improving stability and handling.
3. Question: Define “tire slip angle” and its impact on vehicle handling.
4. Answer: The tire slip angle is the angle between the wheel’s instantaneous direction of travel and the direction of the wheel’s axis. A larger slip angle increases lateral force but also increases the risk of loss of traction.
5. Question: What is the difference between ABS and EBD?
6. Answer: ABS (Anti Lock Braking System) prevents wheel lockup during braking, while EBD (Electronic Brakeforce Distribution) adjusts brake force between front and rear wheels based on load conditions.
7. Question: Explain “yaw” in vehicle dynamics.
8. Answer: Yaw refers to the vehicle’s rotation around its vertical axis, affecting steering and stability during maneuvers.

1. Question: Name a lightweight material commonly used in automotive body panels.
2. Answer: Aluminum is widely used for its high strength to weight ratio and corrosion resistance.
3. Question: What is the purpose of heat treatment in metal components?
4. Answer: Heat treatment alters the microstructure to improve mechanical properties such as hardness, strength, and toughness.
5. Question: Define “CNC machining” and its advantage.
6. Answer: CNC machining uses computer controlled tools to produce precise parts with high repeatability and reduced manual labor.
7. Question: What is the principle behind powder metallurgy?
8. Answer: Powder metallurgy compacts metal powders into desired shapes and sinters them, enabling complex geometries and uniform material properties.

1. Question: What does the term “ECU” stand for?
2. Answer: ECU stands for Engine Control Unit, the microcontroller that manages engine functions such as fuel injection and ignition timing.
3. Question: Define “CAN bus” in automotive networks.

4. Answer: CAN bus (Controller Area Network) is a robust vehicle bus standard that allows microcontrollers and devices to communicate without a host computer.
5. Question: What is the role of a tachometer?
6. Answer: A tachometer measures engine speed in revolutions per minute (RPM), informing the driver or control system of engine performance.
7. Question: Explain the function of a temperature sensor in a car.
8. Answer: A temperature sensor monitors coolant or ambient temperatures to adjust engine parameters and ensure safe operating conditions.

1. Question: What is the purpose of a catalytic converter?
2. Answer: A catalytic converter reduces harmful exhaust gases (CO, HC, NOx) by facilitating chemical reactions that convert them into less harmful substances.
3. Question: Define “Euro 6” emission standard.
4. Answer: Euro 6 is the European Union regulation limiting vehicle emissions to specific thresholds for CO, HC, NOx, and particulate matter.
5. Question: What safety feature reduces the risk of frontal collisions?
6. Answer: Airbags deploy upon impact, cushioning occupants and reducing injury risk.
7. Question: Explain the term “crumple zone.”
8. Answer: A crumple zone is a structural area designed to absorb impact energy by deforming, thereby protecting occupants.

1. Question: What is “human machine interface” (HMI) in automotive design?
2. Answer: HMI refers to the interaction between the driver and the vehicle’s controls, displays, and feedback systems.
3. Question: Define “seat belt pretensioner.”
4. Answer: A pretensioner tightens the seat belt quickly upon collision, reducing occupant movement and improving restraint effectiveness.
5. Question: What is the purpose of “adaptive cruise control”?
6. Answer: Adaptive cruise control maintains a set speed while automatically adjusting to keep a safe distance from the vehicle ahead.
7. Question: Explain “head up display” (HUD).
8. Answer: A HUD projects critical information onto the windshield, keeping the driver’s gaze on the road.

1. Question: What is the difference between a hybrid and an electric vehicle?
2. Answer: A hybrid uses both an internal combustion engine and an electric motor, while an electric vehicle relies solely on an electric motor powered by batteries.
3. Question: Define “regenerative braking.”
4. Answer: Regenerative braking captures kinetic energy during deceleration and stores it in the battery for later use.
5. Question: What is a “gearbox” in a vehicle?
6. Answer: A gearbox (transmission) changes the torque and speed delivered from the engine to the drivetrain by selecting gear ratios.
7. Question: Explain the function of an “electric motor” in a hybrid system.
8. Answer: The electric motor provides additional power, improves torque at low speeds, and can drive the vehicle independently when battery power is sufficient.

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