



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:VI
Class:TY	Program:B.Tech
Branch Code:MEC	Pattern:2022
Name of Course:Automobile Engineering	Course Code:MEC223015B
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 02 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- 1a) Describe the major challenges affecting the growth and competitiveness of the Indian automotive industry in the present scenario. (6) CO1

Question No. 2

- 2a) What Quality checks do CEAT Tyre follows at every stage during production process. (6) CO2

Question No. 3

- 3a) List the types of springs employed in vehicle suspension systems and explain the construction and operation of a coil spring. (8) CO4

OR

- 3b) Explain the construction and operation of a hydraulic suspension system with a neat diagram. List its merits and demerits over traditional suspension systems. (8) CO4

- 3c) Explain the construction and working of an air brake system with a labeled sketch. State its typical applications. (8) CO4

OR

- 3d) Describe the principle and function of Electronic Brake-force Distribution (EBD). How does it work together with ABS to improve braking efficiency and vehicle safety? (8) CO4

Question No. 4

- 4a) List the key mechanical components affecting vehicle performance and describe their interrelationship. (8) CO5

OR

- 4b) Describe the significance of acceleration and braking tests in vehicle evaluation. What parameters are measured, and how do they impact performance and safety? (8) CO5

- 4c) Explain the importance of airbags and seat belts in enhancing occupant safety and minimizing injuries in a crash. (8) CO1

OR

- 4d) Describe any two emerging technologies in automotive safety and explain how they contribute to enhancing driver and passenger protection. (8) CO1

Question No. 5

- 5a) Describe the important characteristics of an automotive battery and discuss its rating, capacity, and efficiency. (8) CO3

OR

- 5b) Explain the main features of lithium-ion batteries and highlight how they differ from and outperform lead-acid batteries. (8) CO3

- 5c) Explain the steps involved in servicing and overhauling a single-plate clutch. List the typical symptoms indicating clutch wear. (8) CO3

OR

- 5d) Describe the procedure for overhauling the suspension system of an automobile. (8) CO3

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