

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025
Vehicle Body Engineering and Safety

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Draw the layouts of bus and coach bodies and explain. (10 Marks)
- b. With a neat sketch, explain the layout of cars. (10 Marks)

OR

- 2 a. Explain the following with sketch:
i) Angle of approach ii) Angle of departure. (10 Marks)
- b. Explain the different types of commercial vehicle and Van's with a neat sketch. (10 Marks)

Module-2

- 3 a. Write the different types of alloys used for vehicle body. (10 Marks)
- b. Briefly explain the metal matrix and high strength composites. (10 Marks)

OR

- 4 a. Describe the properties of structural timber and glass reinforced plastics. (10 Marks)
- b. What are thermoplastics, and why are they commonly used in vehicle interiors and exterior. (10 Marks)

Module-3

- 5 a. Briefly explain the different types of drag forces acting on a moving vehicles. (10 Marks)
- b. Write the various body optimization techniques for minimum drag. (10 Marks)

OR

- 6 a. Explain the following: i) Vehicle drag ii) Flow visualization techniques. (10 Marks)
- b. Describe briefly vehicle weight distribution with neat sketch. (10 Marks)

Module-4

- 7 a. Explain the interior ergonomic of driver's frontal and rear visibility in a vehicle with suitable sketch. (10 Marks)
- b. With a neat sketch, explain seating dimensions. (10 Marks)

OR

- 8 a. Explain vehicle stability with its types. (10 Marks)
- b. Write the effect of operating factor on lateral stability. (10 Marks)

Module-5

- 9 a. Write the different characteristics and sources of noise. (10 Marks)
- b. Explain the following:
i) Body structural vibrations ii) Methods of noise suppression. (10 Marks)

OR

- 10 a. Explain the various safety devices used in a vehicle. (10 Marks)
- b. What is a bumper? Explain different types of bumper. (10 Marks)

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.