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## Eighth Semester B.E. Degree Examination, June/July 2024 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. Explain different types of bus body styles with neat sketch. (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    iii) Cross bearer's. (10 Marks)
- b. Explain 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. Explain metal matrix and high strength composites. (10 Marks)

**OR**

- 4 a. Write the different properties of structural tember and glass reinforced plastics. (10 Marks)
- b. Describe sandwich panel construction with neat sketch. (10 Marks)

### Module-3

- 5 a. Write the various body optimization techniques for minimum drag. (10 Marks)
- b. Explain the principle of wind tunnel technology with neat sketch. (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. With neat sketch, explain seating dimensions. (10 Marks)
- b. Explain the following : i) Dash board instruments    ii) Visibility    iii) Method of improving visibility. (10 Marks)

**OR**

- 8 a. Explain vehicle stability with its types. (10 Marks)
- b. Write the effect of operating factors 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. Describe Physic's of impact between deformable bodies. (10 Marks)
- b. Write the different Law's of mechanism applied to safety. (10 Marks)

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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.