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Eighth Semester B.E. Degree Examination, June/July 2023 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 layout of Bus and Coach bodies and explain. (10 Marks)
- b. Discuss the classification of commercial vehicle bodies with a neat sketches and mention their features. (10 Marks)

OR

- 2 a. Write the classification of cars and explain. (10 Marks)
- b. What are Semi – Integral and Integral methods of construction of a vehicle body? State their merits and demerits. (10 Marks)

Module-2

- 3 a. Explain the properties of aluminum alloy and steel. (10 Marks)
- b. What are the different types of plastics used in vehicle body construction? Explain the properties. (10 Marks)

OR

- 4 a. With a neat block diagram, explain the process of painting. (10 Marks)
- b. What are different types of glasses used in body construction? Explain the specifications and properties. (10 Marks)

Module-3

- 5 a. With a neat sketch, discuss various forces and moments acting on a vehicle in motion. (10 Marks)
- b. Explain the wind tunnel test with a neat sketch to determine the drag co – efficient of a vehicle. (10 Marks)

OR

- 6 a. With a suitable sketches, describe the symmetric and asymmetric loads acting on car body structure. (10 Marks)
- b. Explain the various body optimization technique for minimum drag. (10 Marks)

Module-4

- 7 a. Explain the complete design consideration for driver seat of a car with a neat sketch. (10 Marks)
- b. Sketch and explain the concept of visibility of a driver for Front and Rear. (10 Marks)

OR

- 8 a. Describe how engine location affects the stability. (10 Marks)
- b. Briefly explain the longitudinal stability and lateral stability. (10 Marks)

Module-5

- 9 a. Briefly explain the various sources of noise in a vehicle. (10 Marks)
- b. What are the methods used for controlling the noise and vibration in vehicle? Explain. (10 Marks)

OR

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