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Eighth Semester B.E. Degree Examination, July/August 2022 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. With a neat sketch, explain the layout of bus and coach bodies. (10 Marks)
 b. Explain the various methods of vehicle body construction. (10 Marks)

OR

- 2 a. Discuss the classification of car bodies with neat sketches. (10 Marks)
 b. Define the following : i) Angle of approach ii) Angle of departure iii) Break over angle
 v) Ride height (10 Marks)

Module-2

- 3 a. Discuss the salient feature of the following material used for body work of an automobile
 i) Aluminium alloy ii) Sheet steel iii) rubber iv) timber. (10 Marks)
 b. With a neat block diagram, explain the process of painting. (10 Marks)

OR

- 4 a. List out various materials used in vehicle body construction and explain them. (10 Marks)
 b. Write a short note on plastic, glass and their applications used in vehicle body construction. (10 Marks)

Module-3

- 5 a. With the help of neat sketch, explain the aerodynamic force and moment acting on a car
 body and their effects. (10 Marks)
 b. Explain wind tunnel test with a neat sketch to determine the drag co-efficient of a vehicle. (10 Marks)

OR

- 6 a. Discuss the following loading cases for vehicle body design with suitable sketches:
 i) Static loading ii) Symmetric loading. (10 Marks)
 b. Explain with suitable sketch, stress analysis of a closed integral vehicle structure. (10 Marks)

Module-4

- 7 a. Sketch and explain the concept of visibility test of a driver for both front and rear in a
 vehicle. (10 Marks)
 b. Explain with neat sketch the design consideration for driver seat of a car. (10 Marks)

OR

- 8 a. Explain the different types of vehicle stability. (10 Marks)
 b. Explain how engine location affects the stability. (10 Marks)

Module-5

- 9 a. Explain the various source of noise in a vehicle. (10 Marks)
 b. Discuss the various method used for controlling noise and vibration in a vehicle. (10 Marks)

OR

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