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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. Explain in detail angle of approach, angle of departure and ground clearance. (10 Marks)
b. Illustrate the special features of different types of car bodies in detail. (10 Marks)

OR

- 2 a. Explain the following terms in body building construction with a sketch.
i) Seat rail ii) Skirt rail iii) Wheel arch v) Rub rail. (10 Marks)
b. Explain in detail semi-integral and integral method of construction of a vehicle body. (10 Marks)

Module-2

- 3 a. Justify the use of steel and alloy steels in vehicle body construction. (10 Marks)
b. Explain in detail about different type of glasses used in body construction. (10 Marks)

OR

- 4 a. Briefly explain plant adhesives and anti – corrosive materials. (10 Marks)
b. What are the different types of plastics used in body construction? Explain the specifications and properties. (10 Marks)

Module-3

- 5 a. Explain in detail about types of aerodynamic drag. (10 Marks)
b. With a neat sketch discuss various forces and moments acting on a vehicle in motion. (10 Marks)

OR

- 6 a. Explain in detail different loads acting on vehicle body structure. (10 Marks)
b. Describe structural member of double decker vehicle body. (10 Marks)

Module-4

- 7 a. Explain in detail about : i) Seating dimension
ii) Interior ergonomics for automotive vehicles. (10 Marks)
b. Illustrate with neat sketch the concept of visibility of a driver for both front and rear in a vehicles. (10 Marks)

OR

- 8 a. Briefly explain longitudinal and lateral stability of a vehicle with a sketch. (10 Marks)
b. Explain in detail steering geometry with a neat sketch. (10 Marks)

Module-5

- 9 a. Illustrate with neat sketch any one noise measurement technique in detail. (10 Marks)
b. Explain the various sources of noise in a vehicle. (10 Marks)

OR

- 10 a. Justify with neat sketch how an air bag system provides safety to a driver. (10 Marks)
b. Explain in detail side impact analysis and energy absorbent foams. (10 Marks)

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