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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. - Automobile Engineering

Semester End Examination; Dec. - 2015

Vehicle Body Engineering and Safety

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions, selecting atleast TWO full questions from each part.

PART - A

- 1 a. Discuss the different seating layouts of busses with neat sketches. 12
- b. Write a note on:
 - (i) Angle of approach (ii) Angle of Departure 8
 - (iii) Ground clearance (iv) Rubrail
- 2 a. Briefly explain the different materials used for body construction. 12
- b. Write a note on :
 - (i) Corrosion and Prevention 8
 - (ii) Insulating Materials
- 3 a. With a neat sketch explain what are the aerodynamic forces and moments acting on car body. 10
- b. With a neat sketch, explain the wind tunnel test to determine the co-efficient of drop for a vehicle. 10
- 4 a. With suitable diagram explain the load distribution for the passenger bus. 12
- b. With suitable sketches explain the following:
 - (i) Symmetric vertical loads 8
 - (ii) Longitudinal loads.

PART - B

- 5 a. What are the factors to be considered for a driver seating position? 10
- b. Sketch and explain the concept of visibility of a driver for both front and rear. 10
- 6 a. Explain the longitudinal and lateral stability of a vehicle. 10
- b. Explain how engine location affects the stability with neat sketch. 10
- 7 a. What are the various sources of noise in a vehicle? Explain. 10
- b. Explain the following:
 - (i) Rubber as an Isolater 10
 - (ii) Chassis bearing vibration.
- 8 a. Explain various safety devices used in vehicle. 10
- b. Discuss the design considerations for crash worthiness. 10