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## Eighth Semester B.E. Degree Examination, July/August 2021 Vehicle Body Engineering and Safety

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 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 sketch and mention their features. (10 Marks)
- 2 a. Write the classification of cars and explain. (10 Marks)  
b. Explain the terms used in body building construction with the help of sketch. (10 Marks)
- 3 a. What are the different types of plastics used in vehicle body construction? Explain the specification and properties. (10 Marks)  
b. With a neat block diagram, explain the process of painting. (10 Marks)
- 4 a. What are different types of glasses used in body construction? Explain the specification and properties. (10 Marks)  
b. Write a short notes on : i) Paints ii) Aluminum. (10 Marks)
- 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 coefficient of a vehicle. (10 Marks)
- 6 a. Explain with a suitable sketches, stress analysis of a closed integral vehicle structure. (10 Marks)  
b. Discuss the symmetrical and asymmetrical loading for vehicle body design with suitable sketches. (10 Marks)
- 7 a. Sketch and explain the concept of visibility of a driver for both front and rear in a vehicle. (10 Marks)  
b. With a neat sketch of a driver seat with relative dimensions for two classes of vehicles. (10 Marks)
- 8 a. Sketch and explain the driver's seat position in relation to the steering wheel and pedal in case of passenger car. (10 Marks)  
b. Explain briefly the window winding concept and seat adjustment mechanisms. (10 Marks)
- 9 a. Explain the various sources of noise and methods to control the noise. (10 Marks)  
b. Explain the following :  
i) Body structural vibration  
ii) Chassis bearing vibration. (10 Marks)
- 10 a. Explain the various safety devices used in a vehicle. (10 Marks)  
b. What is a 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.