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BAU602

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Vehicle Body Engineering and Safety

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	With a neat sketch, explain the layout of bus and coach bodies.	10	L2	CO1
	b.	Explain the following terms with sketch : i) Wheel arch ii) Cant rail iii) Scat rail iv) Rub rail v) Skirt rail.	10	L2	CO1
OR					
Q.2	a.	Discuss the classification of car bodies with neat sketches.	10	L3	CO1
	b.	Briefly explain in detail Semi integral and Integral method of construction of a Vehicle Body.	10	L3	CO1
Module – 2					
Q.3	a.	Briefly explain the use of aluminium alloys and steel in vehicle body construction.	10	L3	CO2
	b.	Discuss the different types of plastics used in vehicle body construction. Explain the properties.	10	L3	CO2
OR					
Q.4	a.	List out the salient features of composites and discuss.	10	L3	CO2
	b.	With a neat block diagram, explain the process of painting.	10	L3	CO2
Module – 3					
Q.5	a.	With a suitable sketch, explain Aerodynamic forces and moments acting on vehicle body.	10	L3	CO3
	b.	Briefly explain the wind tunnel with a neat sketch to determine the drag Co-efficient of a vehicle.	10	L3	CO3
OR					
Q.6	a.	Explain in detail different loads acting on vehicle body structure.	10	L3	CO3
	b.	Briefly explain the vehicle weight distribution.	10	L3	CO3
Module – 4					
Q.7	a.	Sketch and explain the driver's seat position in relation to the steering wheel and pedal in case of passenger car.	10	L2	CO4
	b.	Explain the following : i) Seat dimension i) Interior ergonomics for automotive vehicle.	10	L2	CO4

OR					
Q.8	a.	Briefly explain longitudinal and lateral stability of a vehicle with a sketch.	10	L2	CO4
	b.	With neat sketch, explain steering geometry.	10	L3	CO4
Module – 5					
Q.9	a.	Briefly, explain the various sources of noise in a vehicle.	10	L3	CO5
	b.	List out the methods used for controlling the noise and vibration in vehicle. Explain.	10	L3	CO5
OR					
Q.10	a.	Discuss the safety aspects of a bumper design and also explain the different types of bumper.	10	L3	CO5
	b.	Briefly, explain in detail side impact analysis and energy absorbent foams.	10	L2	CO5
