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BAU714A

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Safety of Electric Vehicles

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.	Summarize the design considerations of a vehicle body for safety and describe the necessary features of a safe vehicle body.	10	L2	CO1
	b.	Illustrate the concept of a crumple zone with a neat sketch.	10	L2	CO1
OR					
Q.2	a.	Outline passenger compartment deceleration during a frontal crash with movable obstacle.	10	L2	CO1
	b.	Explain how engine location influences vehicle safety.	10	L1	CO1
Module – 2					
Q.3	a.	Describe driving safety and conditional safety with suitable examples.	10	L1	CO2
	b.	Explain vehicle body deformation behaviour during an accident.	10	L2	CO2
OR					
Q.4	a.	Compare active and passive safety with relevant examples.	10	L2	CO2
	b.	Apply the concept of speed and acceleration response of a passenger cell at the instant of impact.	10	L3	CO2
Module – 3					
Q.5	a.	Describe the working of a cruise control system with a simple block diagram.	10	L2	CO2
	b.	Demonstrate the working of a seat belt with pre-tensioner and explain its role in occupant protection.	10	L3	CO2
OR					
Q.6	a.	Apply the operating principle of an airbag system and explain the triggering process.	10	L3	CO2
	b.	Describe the purpose of (i) Collapsible Steering Column (ii) Safety Bumpers	10	L1	CO2
Module – 4					
Q.7	a.	Explain the purpose and underlying concept of a collision warning system.	10	L2	CO3
	b.	Demonstrate using a simple sketch how a central locking system works.	10	L3	CO3
OR					
Q.8	a.	Apply the working of a tire pressure control system with a block diagram.	10	L3	CO3
	b.	Describe the function of a garage door opener.	10	L1	CO3
Module – 5					
Q.9	a.	Discuss preventive maintenance of an engine including lubrication and cooling checkpoints.	10	L2	CO4
	b.	Apply the concept of wheel alignment and wheel balancing and explain why they are necessary.	10	L3	CO4
OR					
Q.10	a.	Demonstrate the maintenance and servicing steps of a hydraulic braking system.	10	L3	CO4
	b.	Describe routine inspection points for a steering system and justify their importance.	10	L1	CO4
