

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

IV B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH-2023
AUTOMOTIVE SAFETY
(AME Branch)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-AAnswer **all** the questions in Part-A (5X2=10M)

Q.No.	Questions	Marks	CO	KL
1.	a) Why design of the body of a vehicle is a concern for safety?	[2M]	1	
	b) What do you mean by the safety concept? Briefly discuss about perceptibility safety.	[2M]	2	
	c) What is the purpose of a bumper? State how it helps in providing safety	[2M]	3	
	d) Write about collision warning system.	[2M]	4	
	e) What is the purpose of navigation system?	[2M]	5	

PART-BAnswer **One Question from each UNIT (5X10=50M)**

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	List different body designs of a passenger car and explain about any one design that offers best safety with neat sketch.	[10M]	1	
OR				
3.	Discuss in detail the effects of deceleration on impact with stationary and movable obstacles inside the passenger compartment.	[10M]	1	
UNIT-II				
4.	a) Explain how deformation behavior of vehicle body affects the safety of passengers.	[5M]	2	
	b) Write about acceleration characteristics of passenger compartment on impact.	[5M]	2	
OR				
5.	Write a short note on the following: 1) Active safety, 2) Perceptibility safety, 3) Operating safety, and 4) interior safety	[10M]	2	
UNIT-III				
6.	a) Discuss about the automatic seat belt tightener system.	[5M]	3	
	b) Explain the working principle of bumper design for safety.	[5M]	3	
OR				
7.	What is the purpose of an air bag? Explain the constructional features and working of an electronic system for activating air bags with a neat sketch.	[10M]	3	
UNIT-IV				
8.	a) Explain about the collision warning system in a vehicle.	[5M]	4	
	b) Discuss about the merits and demerits of an object detection system with braking system interaction.	[5M]	4	
OR				

9.		Explain the construction and working of tire pressure monitoring system. List its limitations.	[10M]	4	
UNIT-V					
10.	a)	Discuss about advantages and limitations of global positioning system in a vehicle.	[5M]	5	
	b)	Explain the necessity of steering and mirror adjustment.	[5M]	5	
OR					
11.	a)	What is the purpose of rain sensor system? Explain about its working.	[5M]	5	
	b)	Differentiate between global positioning system and navigation system.	[5M]	5	
