

U.S.N.

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations**Programme: B.E.****Semester: V****Branch: Aerospace Engineering****Duration: 3 hrs.****Course Code: 23AS5PEETA/22AS5PEETA****Max Marks: 100****Course: Experimental Techniques for Aerospace Engineering**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT - I	CO	PO	Marks
	1	a)	Explain the development of material standards.	CO1	PO1	10
		b)	What is the need of inspection?	CO1	PO1	05
		c)	Write down the objectives of metrology.	CO1	PO1	05
			OR			
	2	a)	Illustrate the factors affecting precession and accuracy of metrology.	CO1	PO1	12
		b)	Explain the general characteristics of metrology.	CO1	PO1	08
			UNIT - II			
	3	a)	Derive the expression for strain sensitivity in the metallic alloy.	CO1	PO1	05
		b)	State the characteristics of strain gauge.	CO1	PO1	07
		c)	Explain the parameters influencing the behaviour of strain gauge.	CO1	PO1	08
			OR			
	4	a)	What are the types of strain gauge? Explain any two with a neat sketch.	CO1	PO1	10
		b)	With a neat sketch explain the steps for mounting strain gauge.	CO1	PO1	10
			UNIT - III			
	5	a)	Explain any four repair methods of composite structure.	CO2	PO1	10
		b)	What are the mechanical properties of composite? What are different modes of failure in impact testing?	CO2	PO1	10
			OR			
	6	a)	Describe the high velocity ballistic impact test method with its failure modes.	CO2	PO1	10

		b)	Explain any five fault detection methods in the composite structures	CO2	PO1	10
			UNIT - IV			
	7	a)	Explain some methods for aircraft lightning protection of composite aircrafts.	CO3	PO1	10
		b)	What is the significance of bonding and grounding in aircraft lightning protection?	CO3	PO1	10
			OR			
	8	a)	Explain the working principle of the schlieren system with a neat diagram and mention its application.	CO3	PO1	10
		b)	Write the block diagram and working of laser doppler velocimeter.	CO3	PO1	10
			UNIT - V			
	9	a)	Describe the main purposes of ground vibration testing.	CO3	PO1	10
		b)	What is ground vibration testing? Draw and explain its final configuration.	CO3	PO1	10
			OR			
	10	a)	Discuss the basic principles of crashworthy design.	CO3	PO1	10
		b)	What is post-crash survival and what are the various methods to tackle it?	CO3	PO1	10
