U.S.N.										

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

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Aerospace Engineering **Duration: 3 hrs.**
Course Code: 20AE5DEETA **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.

UNIT - I

1	a)	With neat diagram, explain the elements of generalised measuring systems**.**	**5**
	b)	Write down the objectives of metrology	**5**
	c)	Discuss any five types of errors and how they can be eliminated.	**10**

UNIT - II

2	a)	With neat sketches explain the steps for mounting the strain gauge.	**10**
	b)	State the characteristics of the strain gauge.	**7**
	c)	What are adhesives? List the properties of adhesives used in the mounting of strain gauges.	**3**

OR

3	a)	Derive an expression for strain sensitivity in the metallic alloy.	**6**
	b)	State the applications of strain gauge.	**4**
	c)	Explain the parameters influencing the behaviour of the strain gauge.	**10**

UNIT - III

4	a)	Explain any five fault detection methods in the composite structures.	**10**
	b)	Explain any five repair methods of the composite structure.	**10**

UNIT - IV

5	a)	Explain the pitot measurement for compressible and incompressible flow.	**12**
	b)	Explain the Particle image velocimetry.	**5**
	c)	What is the Doppler effect? Write the block diagram of Laser Doppler Velocimetry.	**3**

UNIT - V

6	a)	Explain the types of impact failure and mention the causes of failures.	**10**

b) What is post-crash survival and what are the various methods to tackle it? **10**

OR

7 a) What are the basic principles of Crashworthy design? Explain them. **10**

b) Define the methods of crashworthiness simulation and Explain the type of injuries occurring in a crash. **10**

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