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

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E.

Branch: Aerospace Engineering

Course Code: 21AE8HSERG

Course: ERGONOMICS

Semester: VIII

Duration: 3 hrs.

Max Marks: 100

Date: 14.09.2023

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) How are Human Factors and Ergonomics linked?	04
	b) Mention and explain any 3 basic Ergonomic Principles.	06
	c) Explain the scope of application of Ergonomics.	10

UNIT - II

2	a) How does Ergonomics benefit Product Design? Explain.	10
	b) Explain the factors that affect the Selection of a Control Device as well as Types of Controls.	10

OR

3	a) What are the general rules followed for selecting a proper control for a device? Mention (Any 5).	05
	b) With example, explain digital type of display instrument.	05
	c) What is the relationship between controls and displays? Explain the types of Control-Display Compatibility.	10

UNIT - III

4	a) Mention the Characteristics of Man-Machine Systems and their Classification.	10
	b) Explain the work of Man element in Man-Machine Systems.	10

OR

5	a) Explain the criteria for evaluation of Man-Machine Systems.	10
	b) Explain in details the Design factors to be considered for developing a Man-Machine System.	10

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 - IV

6 a) What is Fatigue? Does it adversely affect human productivity? List and explain some of the Fatigue Mitigation plans. **10**

b) Explain the impact of the following on working conditions: **10**

- i) Temperature
- ii) Lightning
- iii) Noise
- iv) Humidity

UNIT - V

7 a) What are the core elements of Anthropometry? Explain their importance. **06**

b) What are the anthropometric considerations in work table design? **06**

c) Explain the application of ergonomics in aerospace engineering. **08**
