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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

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|---|----|--|----|
| 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**
