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

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E.

Branch: Aerospace Engineering

Course Code:21AE8HSERG

Course: ERGONOMICS

Semester: VIII

Duration: 3 hrs.

Max Marks: 100

Date: 04.07.2023

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			<i>CO</i>	<i>PO</i>	Marks
1	a)	Define human factors, its evolution and explain the objectives of ergonomics.	<i>CO 1</i>	<i>PO 1</i>	10
	b)	Discuss goal of safety with an example.	<i>CO 1</i>	<i>PO 1</i>	10
UNIT - II					
2	a)	Describe different types of display units that often are associated with the products. Discuss the general guidelines that are to be considered while designing these display units.	<i>CO 2</i>	<i>PO 1</i>	10
	b)	Discuss the design aspects of the following controlling devices with reference to the ergonomics: (i) Push Buttons (ii) Toggle Switches (iii) Cranks	<i>CO 2</i>	<i>PO 1</i>	10
OR					
3	a)	Discuss the relationship between the display devices and control devices. (Any one experiment)	<i>CO 2</i>	<i>PO 1</i>	10
	b)	Name the controls that require considerable force and briefly explain the same.	<i>CO 2</i>	<i>PO 1</i>	10
UNIT - III					
4	a)	Explain the man-machine systems with a suitable block diagram. What are the characteristics of man-machine systems?	<i>CO 3</i>	<i>PO 1</i>	10
	b)	What are the criteria for evaluating a man-machine system? Explain.	<i>CO 3</i>	<i>PO 1</i>	10
OR					

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.

	5	a)	Discuss the various types of man-machine systems with an example.	CO 3	PO 1	10
		b)	Discuss muscular performance and kinds of muscular activity.	CO 3	PO 1	10
		UNIT – IV				
6	a)	What is fatigue? Brief out different types of fatigues. Also, state the adverse effects of fatigue?	CO 3	PO 1	10	
	b)	<p>Briefly describe the general principles of carrying out physical activities. (2 points under each heading)</p> <ul style="list-style-type: none"> • Guidelines for Body Postures • Guidelines to organize the Work • Guidelines for Layout of Work Place • Guidelines for Lifting and Carrying Loads • Guidelines for Considerations of Seats, Tables and Work Place and Suitable Body Postures 	CO 2	PO 1	10	
		UNIT – V				
7	a)	Define Anthropometry and mention any 2 fields where this can be used. Describe the design for anthropometry.	CO 4	PO 1	10	
	b)	Enumerate on the application of ergonomics in aerospace engineering. (Any 5 with Explanation)	CO 2	PO 1	10	
