

U.S.N.

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

Autonomous Institute Affiliated to VTU

**August 2023 Semester End Make-Up Examinations****Programme: B.E.****Branch: Aerospace Engineering****Course Code: 21AE8HSERG****Course: ERGONOMICS****Semester: VIII****Duration: 3 hrs.****Max Marks: 100****Date: 08.08.2023**

**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.			<b>UNIT - I</b>	<b>CO</b>	<b>PO</b>	<b>Marks</b>
	1	a)	What is Ergonomics? Summarize the objectives of Ergonomics in designing work systems.	CO 1	PO 1	10
		b)	With suitable illustration, delineate the components that are under the scope of Ergonomic studies.	CO 2	PO 1	10
			<b>UNIT - II</b>			
	2	a)	"Certain design factors can be considered as guidelines by engineers in designing the equipment and working areas". Justify	CO 3	PO 1	10
		b)	Enumerate the general guidelines in designing the display units ergonomically.	CO 2	PO 1	5
		c)	What do you understand by ergonomic design of products?	CO 2	PO 1	5
			<b>OR</b>			
	3	a)	Enumerate the general guidelines for ergonomic designing of control devices.	CO 1	PO 1	10
		b)	Elaborate on the factors to be considered for selecting control devices with a consideration of safety and operational requirements.	CO 1	PO 1	10
			<b>UNIT - III</b>			
	4	a)	Illustrate a simple man machine system. Describe the components of the same.	CO 3	PO 1	10
		b)	Review the functions of Man as an element of Man-Machine system.	CO 3	PO 1	10
			<b>OR</b>			
	5	a)	Categorize and describe the features of the man machine systems into any two groups based on the crucial attributes.	CO 3	PO 1	10

	b)	What do you understand by the term System Reliability? What is the role of system reliability in Man-Machine relationship?	CO 3	PO 1	10
		<b>UNIT – IV</b>			
6	a)	Classify the work loads into four categories. Also provide appropriate description on each category.	CO 2	PO 1	10
	b)	Explain the muscular fatigue mechanism. How does fatigue affect work efficiency?	CO 3	PO 1	10
		<b>UNIT – V</b>			
7	a)	What are anthropometric measurements? Review the three fundamental kinds of anthropometric measurements in work station design.	CO 4	PO 1	10
	b)	Consider an Aircraft manufacturing unit and identify the application areas of Ergonomics.	CO 2	PO 1	10

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