

U.S.N.									
--------	--	--	--	--	--	--	--	--	--

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

Autonomous Institute Affiliated to VTU

## May / June 2025 Semester End Main Examinations

**Programme: B.E.**

**Branch: Aerospace Engineering**

**Course Code: 22AS8HSERG**

**Course: ERGONOMICS**

**Semester: VIII**

**Duration: 3 hrs.**

**Max Marks: 100**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

<b>Important Note:</b> 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)	Describe in detail the repetitive motion injuries and upper body risk factors.	CO 1	PO 1	<b>10</b>
		b)	Define Ergonomics. Elaborate the various components of ergonomics.	CO 1	PO 1	<b>10</b>
			<b>OR</b>			
	2	a)	Describe in detail the helpful tips for working in front of computer?	CO 1	PO 1	<b>10</b>
		b)	What is the main cause of lower back pain and describe in detail the lower body risk factors?	CO 1	PO 1	<b>10</b>
			<b>UNIT - II</b>			
	3	a)	Discuss the design aspects of the following display units with reference to the ergonomics: (i) Analogue type display instruments (ii) Digital type display instruments	CO 1	PO 1	<b>10</b>
		b)	What are the objectives of ergonomics and also mention various approaches adopted by ergonomics?	CO 1	PO 2	<b>10</b>
			<b>OR</b>			
	4	a)	Discuss in detail the relationship between display and control instruments.	CO 1	PO 2	<b>10</b>
		b)	Describe different types of display units that often are associated with the products. Discuss the design factors that are to be considered while designing these display units.	CO 1	PO 1	<b>10</b>
			<b>UNIT - III</b>			
	5	a)	Describe in details the various criteria to evaluate man-machine system.	CO 2	PO 2	<b>10</b>
		b)	Discuss the history and background of man-machine system.	CO 2	PO 1	<b>10</b>

		<b>OR</b>			
6	a)	What is role of machine as a component in man-machine system and likewise what is the role of man as a component in man-machine system.	CO 2	PO 1	<b>10</b>
	b)	What is man-machine system and describe various characteristics of it in detail.	CO 2	PO 1	<b>10</b>
		<b>UNIT - IV</b>			
7	a)	Distinguish between the following with reference to energy expenditures. (i) Heavy work and light work. (ii) Repetitive and non-repetitive work.	CO 2	PO 1	<b>10</b>
	b)	What are some of the human needs that to be considered in ergonomics of workstation?	CO 2	PO 1	<b>10</b>
		<b>OR</b>			
8	a)	What is fatigue? Brief out different types of fatigues.	CO 2	PO 1	<b>10</b>
	b)	Explain in detail the various environmental factors that effect the ergonomic design of work place.	CO 2	PO 1	<b>10</b>
		<b>UNIT - V</b>			
9	a)	Describe some of the key aspects of ergonomics in aviation industry.	CO 3	PO 1	<b>10</b>
	b)	What are the advances in aviation safety?	CO 3	PO 1	<b>10</b>
		<b>OR</b>			
10	a)	Describe the design of input/output devices in aviation sector.	CO 3	PO 1	<b>10</b>
	b)	Describe in detail how crew resources are managed in aviation sector.	CO 3	PO 1	<b>10</b>

\*\*\*\*\*