U.S.N.										

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

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**
Branch: Industrial Engineering and Management **Duration: 3 hrs.**
Course Code: 22IM5PCHFE **Max Marks: 100**
Course: Human Factors Engineering

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.

		UNIT - I	*CO*	*PO*	Marks
1	a)	A furniture manufacturing industry is being set up where you are in charge of the Production Ergonomics aspect of the firm. Explain briefly your purpose.	*CO1*		**10**
	b)	Explain the working roles in which an engineer can use ergonomics and human factors knowledge to positively impact a workplace.	*CO2*	*PO1*	**10**
		OR			
2	a)	Discuss working roles in which an engineer can use ergonomics and human factors knowledge to positively impact a workplace.	*CO1*	-	**10**
	b)	How are ergonomics and human factors connected to engineering?	*CO2*	*PO1* *PO4*	**10**
		UNIT - II			
3	a)	Explain the interactions of posture forces and time with the help of a cube model.	*CO2*	*PO4*	**10**
	b)	Explain the cause and consequences of bad posture.	*CO2*	*PO1*	**10**
		OR			
4	a)	What are the conceptions that an ergonomics engineer has for a body posture? Briefly explain the factors influencing the body postures.	*CO2*	*PO1*	**10**
	b)	Explain hierarchy of time-related factors that can be used to describe production assembly work.	*CO2*	*PO4*	**10**
		UNIT - III			
5	a)	A Painter reaching out to the topmost part of the wall. (i)Which Design principle would you apply here and explain the	*CO3*	*PO6*	**10**

			same briefly. (ii)Write down the steps for using anthropometric data in workstation design.			
		b)	Explain Static Measurements and Dynamic Measurement with suitable examples.	*CO3*	*PO6*	**10**
			OR			
	6	a)	"While almost every human body has the same "biomechanical layout", there is significant variation in body sizes and proportions between individuals. What are the main reasons for the variations in the anthropometric data, explain the same?	*CO3*	*PO6*	**10**
		b)	It is important for work environments to be designed according to the characteristics of the human body. Justify the statement.	*CO3*	*PO2*	**10**
			UNIT - IV			
	7	a)	Explain in detail, the Parameters that influence vision.	*CO4*	*PO3*	**10**
		b)	Using the SRK model by Rasmussen, explain the difference between how a novice and an expert process information when performing a task.	*CO4*	*PO3*	**10**
			OR			
	8	a)	Describe the five senses in their order of dominance in the context of Cognitive Ergonomics.	*CO4*	*PO3*	**10**
		b)	Using the SRK model by Rasmussen, explain the difference between how a novice and an expert process information when performing a task.	*CO4*	*PO3*	**10**
			UNIT - V			
	9	a)	Discuss in detail about the NIOSH Lifting Equation.	*CO4*	*PO3*	**10**
		b)	Explain the techniques that lie under the domain of Multi Aspect methods of evaluation.	*CO4*	*PO3*	**10**
			OR			
	10	a)	Explain the concept and key principles of Heuristic Evaluation (HE) in ergonomics.	*CO4*	*PO4*	**10**
		b)	Review the three broad categories for evaluating physical loading.	*CO2*	*PO6*	**10**

****