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

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E.

Semester: VII

Branch: Industrial Engineering and Management

Duration: 3 hrs.

Course Code: 22IM7PEIDE

Max Marks: 100

Course: Industrial Design and Ergonomics

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)	Elaborate the term “Designing for people” applied to industrial design with relevant diagram	CO1	PO1	10
		b)	Compare an industrial design with an engineering design. Substantiate your answer with suitable examples	CO3	PO3	10
	OR					
	2	a)	What is the role of industrial design in engineering applications in modern manufacturing systems?	CO1	PO2	10
		b)	In designing any product, requirements are inevitably interlinked in one way or another, based on this discuss about elements of design requirements with suitable example.	CO1	PO1 PO2	10
	UNIT - II					
	3	a)	Discuss the information type that is displayed by various displays with relevant examples	CO1	PO1	10
		b)	Demonstrate with a neat sketch man-machine model control loop system	CO1	PO1	10
	OR					
	4	a)	How do the shapes and sizes of various controls and displays impact the usability and functionality in multiple display and control situations in industrial design?	CO2	PO5 PO6	10
		b)	What is the importance of working position in workstation design and how does it impact the man-machine relationship in terms of reducing strain, fatigue, and injury while also enabling effective task performance?	CO1	PO1	10

UNIT - III						
5	a)	Define anthropometric data. What are the major phases of the use of anthropometric data for the design of products? Give the examples to highlight the benefits of the anthropometric data in developing or designing the products	CO1	PO1	10	
	b)	Bring out the relationship between working posture and design of work stations in production environments. List out some of the Musculoskeletal disorders (MSD) commonly observed among the industrial workers	CO2	PO5 PO6	10	
OR						
6	a)	For the following designed element identify the appropriate anthropometric metrics or measure of dimensions. What would be the most appropriate design objective or requirement? i) location of sign boards ii) car seat iii) helmet iv) height of work surface v) Keys on key board.	CO2	PO5 PO6	10	
	b)	Take the example of polishing work carried out on a work table. Highlight the typical workplace dimensions requirement and layout principles	CO2	PO5 PO6	10	
UNIT - IV						
7	a)	State Gestalt laws of perception. What are the four main principles of the Gestalt laws? Sketch the perceptual meaning of their principles	CO1	PO1	10	
	b)	Explain with suitable sketches, the design principles for visual displays, with reference to the following: i) Figure ground relationship ii) Display resolution iii) Grouping of display iv) Colour coding dials v) Digital displays	CO1	PO1	10	
OR						
8	a)	Describe the Concept of Hue, Value and Chroma. Explain the colour psychology by taking an example of <ul style="list-style-type: none"> • Hospital wall • Traffic signal lights • JCB and Cranes • Ambulance 	CO1	PO1	10	
	b)	How does our brain processes visual information to create a perception of the world around us? Mention the process by sketching the vertical section of human eye with proper labelling.	CO1	PO1	10	
UNIT - V						
9	a)	Discuss about how the aesthetic concepts can be analyzed and measured based on different concepts.	CO1	PO1	10	

		b)	Discuss the common standards adopted in a house style or corporate style? List out the requirements for a sound house style.	CO1	PO1	10
			OR			
10	a)		Should customers be involved in the product designing team? Why or why not? What benefits can accrue through their involvement	CO2	PO5 PO6	10
	b)		With a suitable example of your choice discuss about the purpose of the design process.	CO2	PO5 PO6	10

REAPPEAR EXAMS 2024-25