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BME613D

Sixth Semester B.E/B.Tech. Degree Examination, Dec.2025/Jan.2026

Design for Manufacturing and Assembly

Time: 3 hrs. Max. Marks:100

Note: *1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
1	a.	Define DFM and DFA, explain the evolution of DFMA.	7	L1	CO1
	b.	Explain the basic steps involved in design process.	6	L2	CO1
	c.	Define Manufacturability. Explain the general design rules for Manufacturability.	7	L2	CO1
		OR			
2	a.	What do you mean by economical design? Explain with an example.	6	L2	CO1
	b.	Justify the need for creativity in design - use any suitable example.	6	L2	CO1
	c.	Explain with a flow chart material selection for design.	8	L2	CO1
		Module – 2			
3	a.	What do you mean by machining? Explain the concept of drilling and milling.	8	L2	CO2
	b.	What do you mean by doweling? Explain doweling procedure.	6	L2	CO2
	c.	Explain the purpose of key ways and counter sunk screws.	6	L2	CO2
		OR			
4	a.	Write short notes on : i) Reduction of machined area ii) Simplification by separation.	6	L2	CO2
	b.	What do you mean by design for economy and design for capability?	8	L2	CO2
	c.	How do you identify uneconomical design, also add the applications of computers in DFMA.	6	L3	CO2
		Module – 3			
5	a.	What do you mean by assembly process? Explain its importance.	5	L2	CO3
	b.	Explain the social effects of automation.	6	L2	CO3
	c.	What do you mean by transfer system? Explain their types.	9	L2	CO3

			Marks	Level	CO
		OR			
6	a.	Define GD and T. explain any 6 GD and T symbols.	8	L2	CO3
	b.	What do you mean by datum? Explain runout and location tolerance.	6	L2	CO3
	c.	Explain body of revolution and roundness with respect to GD and T.	6	L2	CO3
		Module – 4			
7	a.	What do you mean by design for assembly? Explain the various "fits" in the design process.	7	L2	CO4
	b.	List and explain the design guidelines for manual assembly.	6	L2	CO4
	c.	With an appropriate diagram, explain the systematic DFA technology.	7	L2	CO4
		OR			
8	a.	Explain the classification system for manual handling.	8	L2	CO4
	b.	Explain the effect of : i) Part symmetry on handling time ii) Effect of part thickness and size on handling time iii) Effect of weight on handling time.	12	L2	CO4
		Module – 5			
9	a.	List and explain environmental objectives.	6	L2	CO5
	b.	Explain the basic DFE methods.	7	L2	CO5
	c.	What do you mean by lifecycle assessment? Explain taking any suitable example.	7	L2	CO5
		OR			
10	a.	Explain the concept of recyclability. Give any suitable example.	7	L2	CO5
	b.	List and explain various techniques to reduce environmental impact.	7	L1	CO5
	c.	Explain in detail the design regulations and standards used in DFE.	6	L1	CO5

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