CBCS SCHEME

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BME613D

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
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
Q.1	a.	Explain the effects of a manufacturing process on design.	10	L2	CO1
	b.	What are the guidelines for manufacturability on design? Explain breifly.	10	L2	CO1
		OR			
Q.2	a.	The material of a solid cylindrical tie rod of cross sectional area "A" and length "L" is to be selected for carrying a tensile load 'P' with factor of safety "S". Explain the process of material selection as per the cost per unit property method.	10	L2	CO1
	b.	With the help of a neat block diagram the effect of material properties on design. Explain briefly.	10	L2	CO1
		Module – 2			
Q.3	a.	Describe with a neat sketch on drilling entry and run out.	10	L2	CO2
	b.	With a neat sketch, explain cast holes, cored holes and machined holes.	10	L2	CO2
		OR			
Q.4	a.	Explain the following terms : (i) Simplification by amalgamation (ii) Design for economy (iii) Design for accessibility	10	L2	CO2
	b.	Write a short notes on the following : (i) Design for assembly (ii) Design for clampability (iii) Computer applications for DFMA.	10	L2	CO2
		Module – 3			
Q.5	a.	Sketch and explain the selective assembly module -1.	10	L2	CO3
	b.	Explain the functional and manufacturing datum by taking a suitable example and give the procedure for changing the datum.	10	L2	CO3
		OR			
Q.6	a.	With a neat sketch, explain the "Projected Tolerance Zone".	10	L2	CO3
	b.	Explain virtual size concept and the advantages of true position tolerancing.	10	L2	CO3

		Module – 4			
Q.7	a.	Describe design for assembly fits in the design process.	10	L2	CO4
	b.	Discuss briefly different steps involved in development of the systematic DFA methodology.	10	L2	CO4
		OR			
Q.8	a.	What are the classification system for material handling. Explain briefly.	10	L1	CO4
	b.	Write a short notes on the following terms: (i) General design guidelines for manual assembly (ii) Effect of part symmetry on handling time and effect of weight on handling time.	10	L2	CO4
		Module – 5			
Q.9	a.	Describe the environmental objectives, global issues, regional and local issues with respect to DFE.	10	L2	CO5
	b.	Explain the following with an examples: (i) Life cycle assessment (ii) Basic DFE methods (iii) Weighted sum assessment method.	10	L1 L2	CO5
		OR			
Q.10		Write a short notes on the following :	20	L2	CO5
	a.	Design for disassembly			
	b.	Design for recyclability			
	c.	Design for remanufacture			
	d.	Design for energy efficiency			
	e.	Design for regulations and standard			

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