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BRA/BAR302

Third Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
Fabrication Methods of Robotic Components

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 with neat sketch the spot welding process. Enumerate the advantages and disadvantages.	10	L2	CO1
	b.	Explain the principles and applications of welding process in robotic components.	10	L2	CO1
		OR			
Q.2	a.	Define sheet metal fabrication and the basics of sheet metal fabrications.	10	L2	CO1
	b.	Explain the techniques for binding, cutting, forming in sheet metal and the applications of sheet metal in robotic component.	10	L2	CO1
		Module – 2			
Q.3	a.	Explain in detail the commonly used metal alloys in robotic components manufacturing.	10	L2	CO2
	b.	List the properties and advantages of composite materials.	10	L2	CO2
		OR			
Q.4	a.	Explain in detail the factors to be considered for natural selection of robotic components for a specific applications.	10	L2	CO2
	b.	Explain in detail the commonly used polymers in Robotic components.	10	L2	CO2
		Module – 3			
Q.5	a.	Explain with neat sketch investment casting process.	10	L2	CO3
	b.	Define casting, explain the principles of casting.	10	L2	CO3
		OR			
Q.6	a.	Define Forming. Explain the application and advantages of forming in Robotics.	10	L2	CO3
	b.	Define stamping. Explain the applications and advantages of stamping in Robotics.	10	L2	CO3
		Module – 4			
Q.7	a.	Define additive manufacturing and explain the principle of additive manufacturing.	10	L2	CO4
	b.	Explain with a neat sketch selective laser sintering process.	10	L2	CO4

		OR			
Q.8	**a.**	Explain the neat sketch the working of 3D-printing.	**10**	**L2**	**CO4**
	b.	Explain the advantages and limitations of additive manufacturing in Robotics.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Explain the basic fundamentals of computer aided design.	**10**	**L2**	**CO5**
	b.	Define CNC and explain the basic fundamentals of computer aided manufacturing.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Explain the different types of M-codes in CNC programming language.	**10**	**L2**	**CO5**
	b.	Explain the different types of G-codes in CNC programming language.	**10**	**L2**	**CO5**

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