U.S.N.										

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

Autonomous Institute Affiliated to VTU

June / July 2024 Semester End Make-Up Examinations

Programme: B.E. **Semester: III**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 23ME3PCMAP / 22ME3PCMAP **Max Marks: 100**
Course: Manufacturing Processes

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)	Classify manufacturing processes.	CO1	PO1	**06**
	b)	Discuss the different types of molding sand used in foundry.	CO5	PO1	**10**
	c)	Point out the functions of patterns used in casting process.	CO1	PO1	**04**
		OR			
2	a)	Highlight the various properties of molding sand.	CO5	PO1	**10**
	b)	Discuss the steps involved in casting of an engine block. State the advantages and applications of casting process.	CO1	PO1	**10**
		UNIT - II			
3	a)	With a neat sketch explain the elements of a gating system.	CO2	PO1	**06**
	b)	List the different methods of achieving directional solidification in casting of metals.	CO2	PO1	**04**
	c)	Explain the step-by-step process of gravity die casting with a neat sketch. State its benefits and drawbacks.	CO4	PO1	**10**
		OR			
4	a)	Illustrate and explain the process of shell molding used in making parts like camshafts and valves. How is it different from sand casting process?	CO4	PO1	**10**
	b)	State the causes and remedies of following casting defects: i. Pinholes ii. Shrinkage Cavity iii. Cold Shut iv. Hot Tears or Hot Cracks v. Warpage	CO3	PO1	**10**

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			UNIT - III			
	5	a)	Compare and contrast TIG & MIG welding processes.	*CO4*	*PO1*	**06**
		b)	State the causes and prevention of external welding defects in weld metal.	*CO3*	*PO1*	**06**
		c)	Explain the metal joining process which is achieved by impelling the cladding plate against the substrate material through the energy generated by an explosive discharge. State its advantages and disadvantages.	*CO4*	*PO1*	**08**
			UNIT - IV			
	6	a)	Explain the process of powder metallurgy in detail. State its advantages, limitations and applications.	*CO4*	*PO1*	**12**
		b)	Explain the process of powder forging. State its advantages.	*CO4*	*PO1*	**08**
			UNIT - V			
	7	a)	Explain the steps of Fused deposition modeling process with illustration. List some of the FDM materials.	*CO4*	*PO1*	**10**
		b)	Explain with a neat sketch selective laser sintering process.	*CO4*	*PO1*	**10**

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