U.S.N.										

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: Industrial Engineering & Management **Duration: 3 hrs.**
Course Code: 22IM3PCMAP **Max Marks: 100**
Course: Manufacturing Process

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)	List the differences between Orthogonal and Oblige metal cutting. What are the various types of metal chips formed during metal cutting?	CO2	PO1	**08**
	b)	While machining Carbon steel by a tungsten steel tool, the tool life of 50 minutes was observed when machined with a cutting speed of 100 m/min. Determine (i) General Taylor's tool life equation (ii)Tool life for a cutting speed of 80 m/min. Assume n=0.09	CO3	PO2	**06**
	c)	In an orthogonal cutting operation, the rake angle = -5º, chip thickness before the cut = 0.2 mm and width of cut = 4.0 mm. The chip ratio = 0.4. Determine (a) the chip thickness after the cut, (b) shear angle, (c) friction angle, and (d) Coefficient of friction	CO3	PO2	**06**
		OR			
2	a)	Find the time required to drill 4 holes in a cast iron flange each of 2 cm depth, if the hole diameter is 2 cm. Assume cutting speed as 21.9 m/min. and feed as 0.02cm/rev.	CO3	PO2	**10**
	b)	What is the function of dividing head? Sketch and explain internal mechanism of universal dividing head.	CO2	PO1	**10**
		UNIT - II			
3	a)	Apply the Sand-casting procedure to obtain casting and also mention the essential parameters which are responsible for successful casting.	CO2	PO1	**10**
	b)	Explain with an example the design consideration on the pattern, the mould and what could be the main causes of defects and how can it be reduced	CO2	PO1	**10**
		OR			
4	a)	Explain Low pressure Die casting process with a neat sketch	CO2	PO1	**06**

		b)	Explain the construction and working of Squeeze and Jolt sand molding machine.	*CO2*	*PO1*	**10**
		c)	Explain any four properties that are generally required in molding materials	*CO2*	*PO1*	**04**
			UNIT - III			
	5	a)	Describe the working and construction of magnetic particle inspection with advantages and disadvantages	*CO2*	*PO1*	**10**
		b)	What are the machining characteristics with respect to which the non- traditional machining process can be analysed?	*CO1*	*PO1*	**10**
			OR			
	6	a)	What are the main functions of electrolysis in the ECM?	*CO2*	*PO1*	**10**
		b)	Explain the Eddy Current Testing Process used in NDT.	*CO2*	*PO1*	**10**
			UNIT - IV			
	7	a)	Explain the welding principles and list various types of Arc welding and Resistance Welding.	*CO2*	*PO1*	**10**
		b)	Explain the principle operation Atomic Hydrogen Welding with a neat sketch	*CO2*	*PO1*	**10**
			OR			
	8	a)	Explain the working and construction of MIG welding with a neat sketch.	*CO2*	*PO1*	**10**
		b)	What is meant by Explosive welding? Describe using a neat sketch.	*CO2*	*PO1*	**10**
			UNIT - V			
	9	a)	Explain the defects in the forging components, its causes and remedies.	*CO2*	*PO1*	**10**
		b)	Explain with neat sketches the three methods of external cylindrical centreless grinding.	*CO2*	*PO1*	**10**
			OR			
	10	a)	Explain briefly the different types of Forging Process.	*CO2*	*PO1*	**10**
		b)	Explain how Grinding Wheels are prepared for manufacture.	*CO2*	*PO1*	**10**

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