U.S.N.										

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

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: IV**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 23ME4PCMFT **Max Marks: 100**
Course: Manufacturing Technology

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)	Discuss with a neat sketch, the nomenclature of a single point cutting tool.	CO1	PO1	**10**
	b)	Solve for an orthogonal cutting operations, a chip length of 80 mm was obtained from an uncut chip length of 200 mm while cutting with a tool of 20 degrees rake angle using a depth of cut of 0.5 mm. Determine the shear plane angle and chip thickness.	CO1	PO1	**10**
		OR			
2	a)	With a neat sketch, explain the parts of a shaping machine.	CO2	PO1	**08**
	b)	Discuss the differences between a Planer and a Shaper.	CO2	PO1	**06**
	c)	List the properties of cutting fluids	CO2	PO1	**06**
		UNIT - II			
3	a)	Explain the parts of the column and knee milling machine.	CO2	PO1	**08**
	b)	Explain the construction features of a radial drilling machine with a neat sketch.	CO2	PO1	**08**
	c)	Write a brief note on Lapping and Honing process	CO2	PO1	**04**
		UNIT - III			
4	a)	With neat sketches, explain the types of rolling mills.	CO3	PO1	**10**
	b)	With a neat sketch, explain process variables in rolling.	CO3	PO1	**10**
		OR			
5	a)	Explain forging die design parameters.	CO3	PO1	**10**
	b)	Explain the defects in forging with the help of diagrams.	CO3	PO1	**10**
		UNIT - IV			
6	a)	With neat figures, explain direct and indirect extrusion process	CO3	PO1	**10**

		b)	Explain with neat sketch explosive and electromagnetic forming.	*CO3*	*PO1*	**10**
			UNIT - V			
	7	a)	It is required to punch a hole of 10 mm diameter in MS plate of 10 mm thick Determine whether it can be made Shear resistance of MS plate is 600 MPa and the compression strength of the punch is 2000 MPa	*CO2*	*PO1*	**06**
		b)	It is required to punch a round blank of 250 mm from a 2.5 mm thick sheet with zero shear angle on the punch What is the cutting force required? What is the average pressure required if the fraction of penetration is 0.3. Also calculate the energy required to punch the blank Take $\tau_s = 80$ MPa	*CO2*	*PO1*	**06**
		c)	Explain the types of drill jigs.	*CO3*	*PO1*	**08**

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