U.S.N.										

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

Autonomous Institute Affiliated to VTU

December 2023 Supplementary Examinations

Programme: B.E. **Semester: IV**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 22ME4PCMFT **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*	*PO 1*	**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)		Analyse the constructional features of a shaper with a neat sketch	*CO2*	*PO1*	**08**
	b)		Discuss the differences between a Planer and a Shaper	*CO2*	*PO1*	**04**
	c)		List the differences between a centre lathe and Capstan & Turret lathe.	*CO2*	*PO1*	**08**
			UNIT - II			
3	a)		Explain compound indexing of 77 divisions?	*CO2*	*PO1*	**06**
	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*	**06**
			UNIT - III			
4	a)		With a neat sketch, explain any five types of rolling mill configurations	*CO3*	*PO1*	**10**
	b)		With a neat sketch, explain process variables in rolling.	*CO3*	*PO1*	**10**
			OR			
5	a)		Explain with a neat sketch, forging die design parameters.	*CO3*	*PO1*	**08**
	b)		Differentiate between Forging harmers and presses	*CO3*	*PO1*	**08**
	c)		Write a brief note on defects in forging process.	*CO3*	*PO1*	**04**

			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 is 600 MPa and the compression strength of the punch is 2000 MPa	*CO2*	*PO1*	**05**
		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*	**05**
		c)	Write a brief note on any 5 fives of drill jigs	*CO3*	*PO1*	**10**

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