U.S.N.										

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

Autonomous Institute Affiliated to VTU

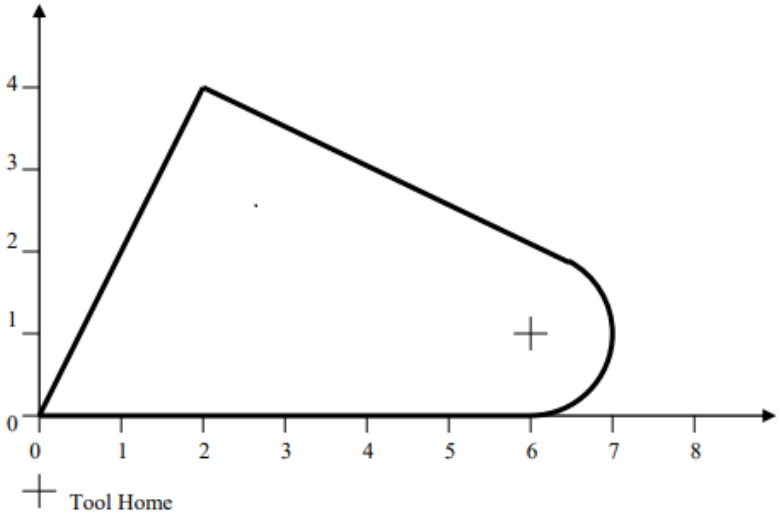
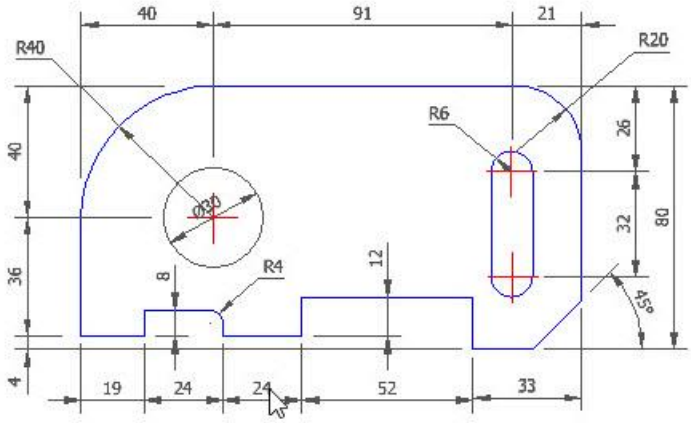
December 2023 Supplementary Examinations

Programme: B.E. **Semester: IV**
Branch: Industrial Engineering and Management **Duration: 3 hrs.**
Course Code: 22IM4PCCIM **Max Marks: 100**
Course: Computers in Manufacturing

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)		Make use of block diagram to explain product cycle in a computerized environment	*CO1*	*PO1*	**10**
	b)		Discuss in brief solid modelling and wire frame modelling	*CO1*	*PO1*	**10**
			UNIT - II			
2	a)		Discuss the elements of computer numerical control system.	*CO1*	*PO1*	**10**
	b)		Explain the different modes of operation of a CNC machine tool.	*CO1*	*PO1*	**10**
			OR			
3			Discuss the following with reference to CNC system i). Spindle drive ii) Brushless D.C. Motor iii). Stepper motor iv) Servo motor	*CO1*	*PO1*	**4*5= 20**
			UNIT - III			
4	a)		Discuss Adaptive Control with Optimization and Adaptive Control with Constraints with reference to CNC system.	*CO3*	*PO2* *PO3* *PO12*	**10**
	b)		Discuss in brief i). Tool presetting & ii). Automatic Tool Changers.	*CO3*	*PO2* *PO3* *PO12*	**10**

			UNIT - IV			
	5	a)	What are "G" & "M" codes in C.N.C programming? Explain any five G & M codes	*CO3*	*PO2* *PO3* *PO12*	**05**
		b)	An APT program for the profiling of the part in Figure is to be generated. The processing parameters are: (a) feed rate is 5.39 inches per minute; (b) spindle speed is 573 revolutions per minute; (c) a coolant is to be used to flush the chips; (d) the cutter diameter is to be 0.5 inches, and (e) the tool home position is (0, -1, 0).  	*CO2* *CO3*	*PO2* *PO3* *PO12*	**15**
			OR			
	6	a)	Discuss the following with an example i). Geometry statement ii). Motion statements iii). Postprocessor statements iv). Auxiliary statement	*CO3*	*PO2* *PO3* *PO12*	**06**
		b)	Write a CNC manual part program for the following profile.  	*CO2* *CO3*	*PO2* *PO3* *PO12*	**14**
			UNIT - V			
	7	a)	Discuss common robot configurations used in industrial Robots.	*CO1*	*PO1* *PO2*	**10**
		b)	Discuss in brief (i) Work cell control (ii). Applications of robots	*CO1*	*PO1* *PO2*	**10**

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