M.E. First Semester (Mechanical Engineering) (CAD / CAM) (F.T.) (CBS)

13483 : Computer Aided Manufacturing : 1 MCC 2

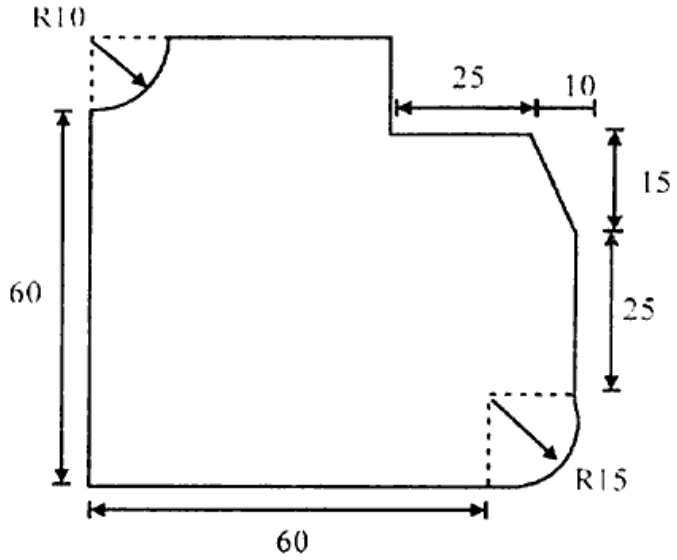
P. Pages : 2 | **AU - 3289**

Time : Three Hours | Max. Marks : 80

Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.

1.	a)	How NC systems are classified. Explain each system in detail with block diagram of each.	**6**
	b)	Describe with sketch punched tape readers, optical tape readers & pneumatic tape readers.	**7**
2.	a)	What are the feedback devices used in CNC machines. Explain briefly their working.	**7**
	b)	Explain software interpolator in detail.	**6**
3.	a)	compare MCU of NC machines with CPU of computer. What are the important hardware requirement of NC machine?	**6**
	b)	Explain reference word interpolator.	**7**
4.	a)	Explain the following terms: i) Circular interpolation & liniar interpolation. ii) p-surf, d-surf and c-surf in APT.	**7**
	b)	What is punched tape? Explain the procedure of preparation of punched tape.	**7**
5.	a)	Compare various types of NC tape formats. By considering suitable example, write piece of part program in all formats.	**7**
	b)	Explain the principles of designating the axes of NC machines. How axes are identified in lathe, drilling and milling.	**6**
6.	a)	Compare CNC and DNC systems. Describe with sketch types of DNC.	**7**
	b)	Discuss different types of zero systems used in NC/CNC system. Explain each with sketch of suitable example.	**6**
7.	a)	How non productive elements are reduced using adaptive control. Explain with suitable example.	**6**
	b)	Explain how position & motion is controlled in NC system with the help of suitable sketch.	**7**
8.	a)	Differenciate between absolute and incremental system with suitable example.	**6**
	b)	Describe ACC & ACO system compare it.	**7**

9. a) Prepare NC part programming for profile edge milling for the component of 25mm thick plate as shown in fig.1. **9**

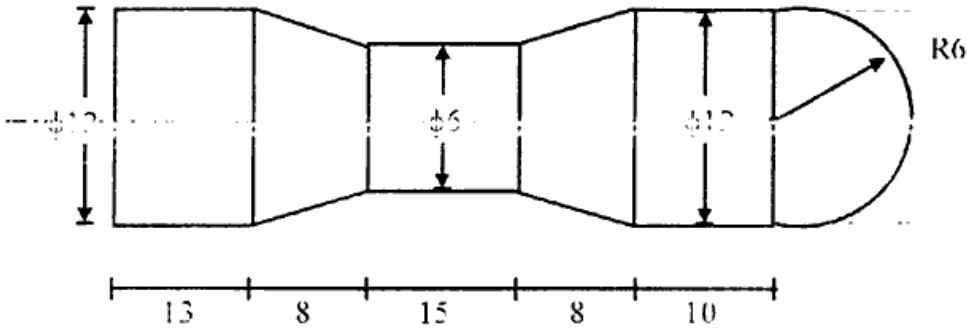


All dimensions are in mm / Fig 1

End Mill cutter ϕ30mm cutting speed 500 RPM & feed 5mm/rev.

b) Describe MACRO feature used in APT with its syntax and suitable example. **5**

10. a) Prepare NC part programming using Do loop maximum doc allowed is 1mm. Assume suitable data, if required for turning operation as shown in fig.2 Raw material is blank ϕ12 × 60mm long. **10**



All dimensions are in mm Fig. 2

cutting speed 800 RPM. Feed 10mm/min.

b) Explain the function codes used in preparation of manual part program. **3**

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