Reg.No.										

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University, Manipal – 576 104

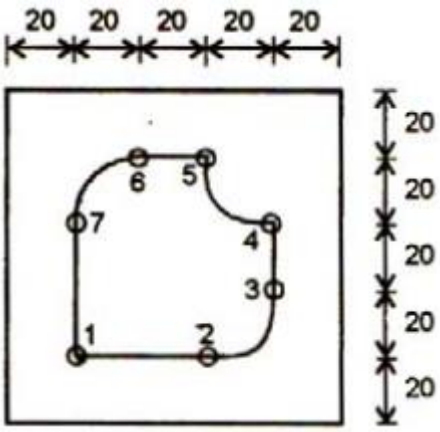
VI SEM. B.Tech. MECHATRONICS ENGG. DEGREE EXAMINATIONS (MAKE-UP)
JULY 2016

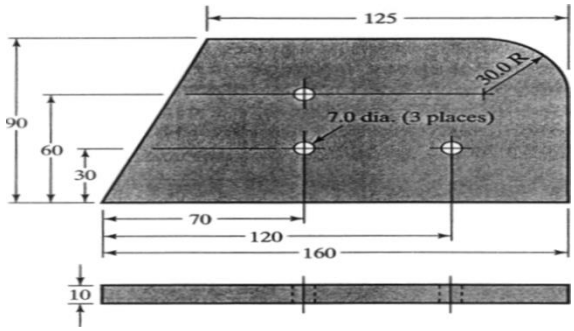
SUBJECT: COMPUTER INTEGRATED MANUFACTURING (MME-336)
REVISED CREDIT SYSTEM

Time: 3 Hours. MAX.MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Any missing data can be assumed suitably.

1A)	In CNC, center of the tool follows the programmed path. Then how the machining along the edges of billet is possible? Discuss in detail.	**(04)**
1B)	Discuss the significance of G98 and G99 in canned cycle.	**(04)**
1C)	What is the difference between station and server with regards to Bottle neck model?	**(02)**
2A)	Write a program in word address format for the profile shown in Fig1.using different interpolations. Take 10mm slot diameter and depth of cut 10mm.  Fig 1: APT programming Profile (all dimensions are in mm)	**(06)**
2B)	Elaborate on the sequence of activities in APT with aid of structured diagram and enumerate the tasks of programmer and computer in APT.	**(04)**
3A)	What are the different physical configurations of robots? Discuss with the neat sketch of robot configuration which is best suited for assembly purpose in FMS setup.	**(05)**

3B)	Write the complete APT program to generate 3 holes of equal dimension as shown in the figure 2.  Fig 2: APT programming Profile (all dimensions are in mm)	**(05)**
4A)	In each aisle of an AS/RS, there are 70 storage compartments in the length direction and 10 storage compartments vertically. The dimensions of the unit load in inches (in) are 50 (length), 45 (width) and 50 (height) respectively. The allowances designed for each storage compartment are: x = 8 inch, y = 7 inch and z = 10 inch. Storage depth u in the number of unit load is 3. Determine the capacity per aisle and the dimensions of the single storage system.	**(04)**
4B)	The following is the ISO specification for tungsten carbide inserts used in turning ***C B M G 22 04 08***. What is the meaning of each letter and number?	**(03)**
4C)	An FMS is capable of producing 3.6 parts per hour and it consists of 3 workstations, workstation 1 is Loading and Unloading station with 2 servers. Workstation 2 performs Threading operation and another workstation consists of 3 servers and performs drilling operation. The utilization of each station is 24%, 100% and 48% respectively. The workload for first workstation is 8minutes, for second workstation it is 50 minutes and that of third workstation is 24 minutes. Calculate the number of servers in station 2.	**(03)**
5A)	Discuss different configuration of CMM on the basis of operation and controlling.	**(05)**
5B)	Briefly discuss about the different types of coding scheme structure and in detail explain about the optiz coding.	**(05)**
6A)	A XYZ company has manufacturing unit which produces different variant of parts and they do not exhibit too much similarity and new part are introduced on a regular basis. For this kind of manufacturing environment, which CAPP module do you suggest? And explain in detail about the module that you suggest.	**(05)**
6B)	Discus the various configurations of DNC with neat sketches.	**(05)**