R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
COMPUTER AIDED MANUFACTURING
(COMMON TO ADVANCED MANUFACTURING SYSTEMS, CAD/CAM,
DESIGN FOR MANUFACTURING)

Time: 3hours   Max. Marks: 60

Answer any five questions
All questions carry equal marks

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1(a) Briefly explain any 3 types of geometry commands used in APT.
 (b) Write the APT program for the geometry shown in Figure 1 below: [6+6]
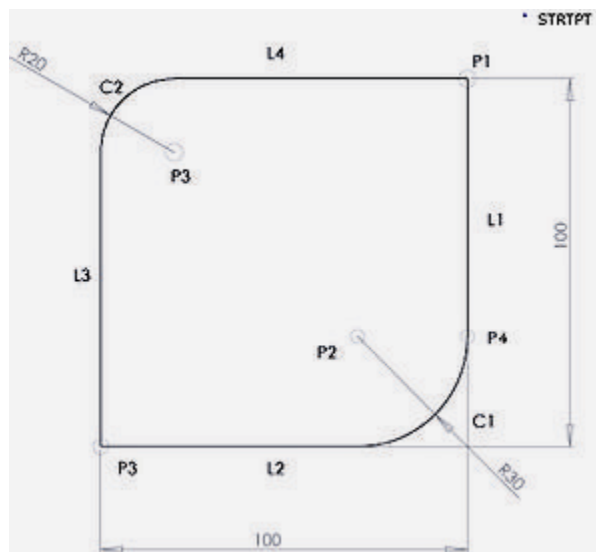

Figure 1

2 (a) Discuss about interchangeable and quick change tooling systems used in CNC
      machines.
  (b) Describe adaptive control with optimization for a milling machine with a neat
      sketch.   [6+6]

3 (a) With the aid of a neat diagram, explain the structure of a post processor in a NC
      system.
  (b) What is DAPP? Discuss about the major variables in the DAPP based post
      processor.   [6+6]

4.(a) What is a microcontroller? Explain the various the factors to be considered in the
      selection of a microcontroller used in a CNC machine.
  (b) Define PLC. Describe the various hardware components of a PLC.   [6+6]

5(a) Describe the functioning of a Hybrid CAPP system.
  (b) With a block diagram explain the functioning of a CMM. Also mention the
       advantages and limitations of it.   [6+6]

6. (a) What is adaptive control? Explain the various sensors used for controlling the
        possible parameters during machining on CNC machine tools.
   (b) Discuss the various hardware components of a Microcontroller.   [6+6]

7. (a) Describe about automatic tool path generation.
   (b) Compare CNC with DNC and mention the advantages and disadvantages of
       DNC,   [6+6]

8. Write short notes on the following:
   (a) Any three types of motion commands used in APT.
   (b) Automatic head changers used in DNC.
   (c) Application of PLC's in CNC machines.
   (d) Expert systems.   [6+6]