BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: ME **SEMESTER : I**
BRANCH: A.M.S **SESSION : MO/17**

SUBJECT: MPE1003 COMPUTER AIDED MANUFACTURING

TIME: 3 HOURS **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Identify the various basic components of an NC machine tool, giving in brief the function of each component the help of block diagram. [6]

Q.1(b) State difference between the skills required producing a complex part on a manual lathe and on an NC lathe. [6]

Q.2(a) What is CNC control system? Identify the various basic components of the CNC machine tool, giving in brief the function of each component with the help of block diagram. [6]

Q.2(b) Describe the classification of CNC machines. [6]

Q.3(a) Discuss the difficulties encountered in using conventional numerical control. [6]

Q.3(b) Explain various types of DNC systems with the help of neat sketches. [6]

Q.4(a) Give any five definitions of point in APT geometry. [4]

Q.4(b) Prepare complete NC part program in APT for profile milling of the part shown in Fig.1. Assume suitable data for speed, feed and cutter. [8]

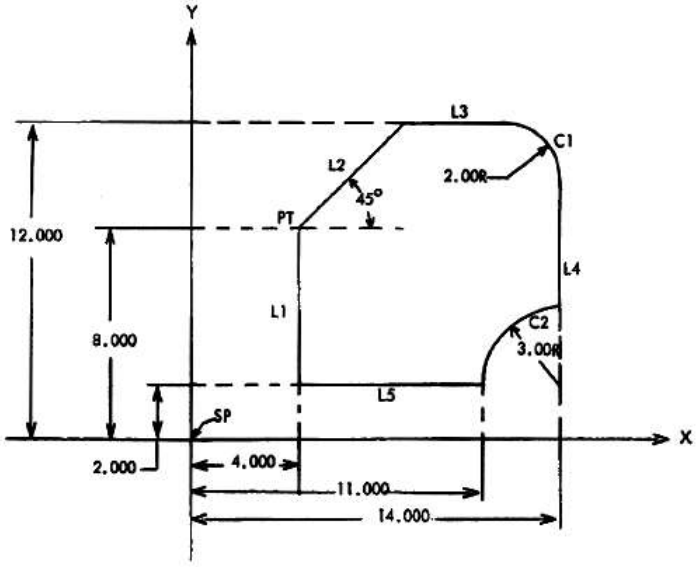
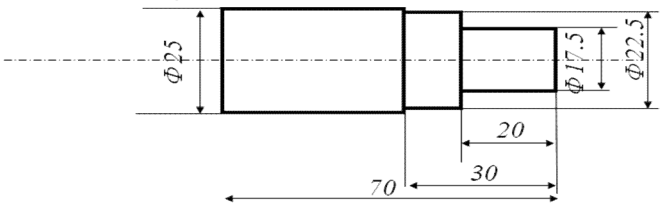


Fig. 1

Q.5(a) What is meant by canned cycle and subroutine program? [4]

Q.5(b) Write a CNC program using an appropriate G and M codes to turn components shown below. Assume suitable data for speed, feed and depth of cut. [8]



PTO

Q.6(a) What is computer aided process planning? Explain in brief the variant and generative approach of process planning. [6]

Q.6(b) When is reverse engineering applied? In detail discuss the steps involved in Reverse engineering. [6]

Q.7(a) Write short notes on any two of the following: [6x2]
(i) Mechanical components of CNC system (ii) Computer controlled inspection
(iii) Adaptive control machining

:::::06/12/2017:::::E