

Dr Param Singh

4/5/23

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National Institute of Technology Hamirpur
Department of Mechanical Engineering
Mid Semester Examination (May-2023)

B. Tech. VIII Semester

Time: 3 Hours.

Max. Marks: 50

Sub.: Computer Aided Manufacturing (ME-421)

Instructions: 1) All questions, weightage of marks as mentioned, are compulsory
2) Assume suitable data wherever necessary

1. (a) What do you understand by production system? Discuss the different categories of production system. [5 M]
(b) What do you understand by NC/CNC coordinate system? Explain the adaptive control in details. [5 M]
2. (a) What do you understand by robot anatomy and related attributes? Discuss about the Jointed-arm robot and SCARA robot. [5 M]
(b) What is robot manipulator? Discuss the different types of sensors used in robotic system [5 M]
3. (a) Discuss the different elements of flexible manufacturing system. Explain different layout configurations of flexible manufacturing system. [5 M]
(b) Discuss the different types of automated guided vehicle systems (AGVS). Explain the automated vehicle guidance and routing system. [5 M]
4. (a) What do you understand by automatically programmed tools (APT). Discuss the different types of statements in APT part programme. [5 M]
(b) Write a part programme for the part as shown in Fig. 1 using circular interpolation function. [5 M]

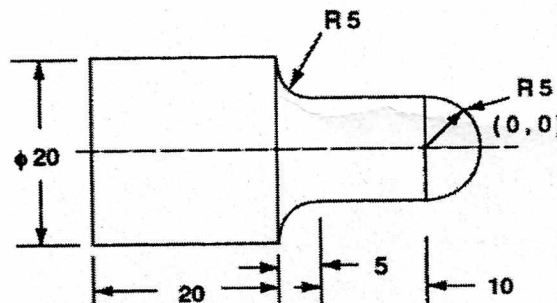


Fig. 1

(81)

- 5 (a) What do you understand by contouring motions? Discuss the different types of surfaces to direct the tool movement. Explain the APT modifier words. [5 M]
- (b) Write a part programme for the component as shown in Fig. 2. It is assumed that the component has already been cut to rough shape and it is required to write an APT part programme for finish cut.

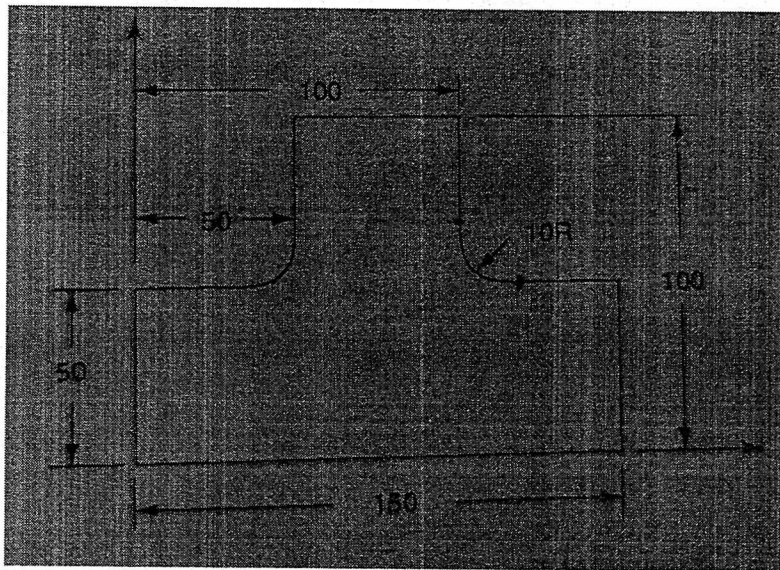


Fig. 2