

AQ – 2720

Third Semester M. E. (Production Tech. and Mgt.) Examination

COMPUTER AIDED DESIGN AND MANUFACTURING

Paper – 3 SPTM 2

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer-book must be used for Section A and B in Pharmacy and Cosmetic Tech.
- (2) All questions carry marks as indicated.
- (3) Answer **Three** questions from Section A and **Three** questions from Section B.
- (4) Due credit will be given to neatness and adequate dimensions.
- (5) Assume suitable data wherever necessary.
- (6) Illustrate your answer wherever necessary with the help of neat sketches.
- (7) Use pen of Blue/Black ink/refill only for writing the answer book.

SECTION A

1. (a) Explain the basic transformations with the help of suitable examples. 7
- (b) What is concurrent engineering ? Explain any two schemes of concurrent engineering. 6
2. (a) Describe various types of surfaces with reference to the surface modeling. 7
- (b) Describe the CAD/CAM evaluation criteria. 7
3. (a) A rectangle is defined by its vertices (0, 1), (4, 1), (4, 4) and (0, 4). Perform the following transformations in succession on this rectangle.
- (i) Translate the rectangle by 1 unit in both X and Y directions.
- (ii) Scale the rectangle by a factor of 2.
- (iii) Rotate the rectangle by 45° about the origin in anticlockwise direction. 7
- (b) What is geometric modeling ? Explain with the help of suitable examples. 6

AQ-2720

P.T.O.

4. (a) What are AGVs ? Explain their types. 7
- (b) Explain the different material handling systems used in CIM. 6
5. (a) Explain the concepts of off-line and on-line inspections. Give suitable examples. 6
- (b) What is CAPP ? Explain the schemes of CAPP. 7

SECTION B

6. (a) Explain the concept of co-ordinate frames with reference to the robot arm kinematics. 7
- (b) Differentiate among NC, CNC and DNC. State the application of each of them. 6
7. (a) Describe the commonly used toolings used in industrial robots. Draw the suitable sketches. 7
- (b) Sketch and describe the various configurations and work envelopes for different types of robots. 6
8. (a) Explain with neat sketch the working of MCU. 4
- (b) Write a CNC part program for manufacturing the part shown in figure 8(b) on turning machine with FANUC controller. Explain the G-codes and M-codes used in it. Assume suitable data if necessary.

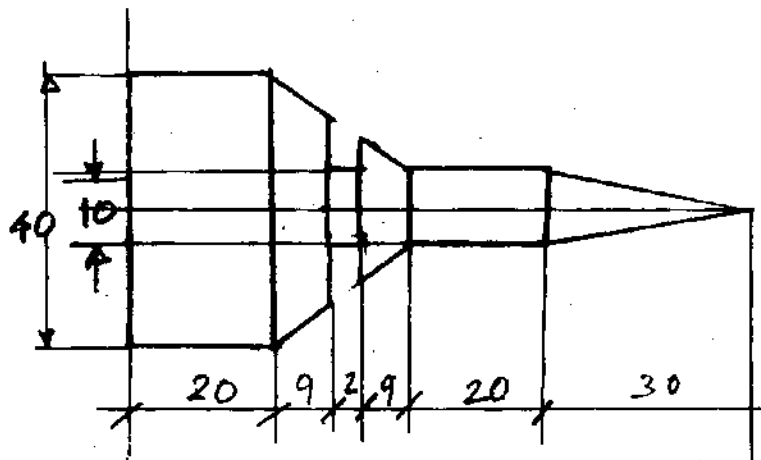


Fig. 8(b)

9. (a) Explain the tool transfer operation in NC/CNC machines with the help of neat sketches. 4
- (b) Prepare a complete CNC part program for manufacturing a component as shown in Figure 9(b). Explain the G-codes and M-codes used in it. Assume suitable data if necessary.

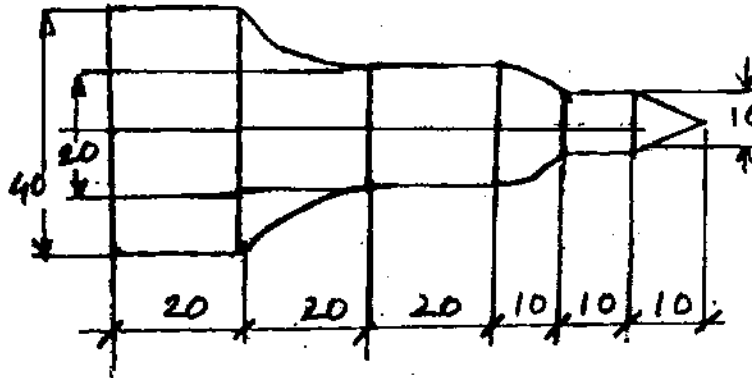


Fig. 9(b)

10

10. (a) Explain the various methods of analysis of FMS. 7
- (b) What is group technology ? Explain with suitable examples. 6



