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RN-7467

B. E. IV (Sem. VII) (Mechanical) Examination

May / June – 2010

CAD - CAM

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 7) (Mechanical)**

Name of the Subject :

☛ **CAD-CAM**

☛ Subject Code No. : **7 4 6 7** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Attempt all questions.

(3) Answer to the two sections must be written in the separate answer books.

(4) Assume the necessary data giving justification.

(5) Figures to the right indicate full marks.

(6) Use of the graph paper is allowed.

SECTION: I

Q-1 (A)Answer the following questions (any 8) 16

(1) Discuss the limitations of Bezier curve.

(2) Which are various formats (coordinate systems) for point in space?

(3) Which are various entities for creating a drawing?

(4) List important software packages available for modeling.

(5) List several ways for creating surfaces.

(6) Classify various projections.

(7) List various types of digital display devices.

(8) Explain revolve feature using suitable example.

(9) What is curve fitting technique?

(10) List various input devices.

(B) Differentiate the following. (any 1) 04

(1) Curve fitting and Curve fairing technique.

(2) IDEAS software and AutoCAD software.

Q-2 Answer any three. 18

1. Prove that the reflection of a point P(x, y) about a line passing through the origin and inclined at Ø angle is
   $x1 = x \cos 2Ø + y \sin 2Ø$
   $y1 = x \sin 2Ø + y \cos 2Ø$
   Where, x1 and y1 are coordinates after reflection transformation.
2. Write Auto CAD commends which you will use to draw two views of hexagonal headed bolt having diameter **d.**
3. What do you mean by CSG and B-rep ? Discuss them in detail.
4. Describe geometric modeling in detail. Write the name of software which can be used for geometric modeling.
5. discuss benefits of computer aided design

Q-3 Write short note (any three). 12

1. Zooming in and zooming out.
2. Layers in Auto CAD.
3. Bezier curves.
4. Various types of printers.

SECTION: II

Q. 4 Answer the following.

(A) **(10)**

(1) Explain line cutting NC system.
(2) Discuss canned cycle for drilling.
(3) Show axis designation for shaping machine.
(4) Explain the preparatory functions for absolute and incremental coordinates with suitable example.
(5) Define the meaning of even parity check with suitable example.

(B)

(1) Write manual part program for drilling series of holes for the work piece shown in Figure 1. (Drilling location, 1-4) **(04)**

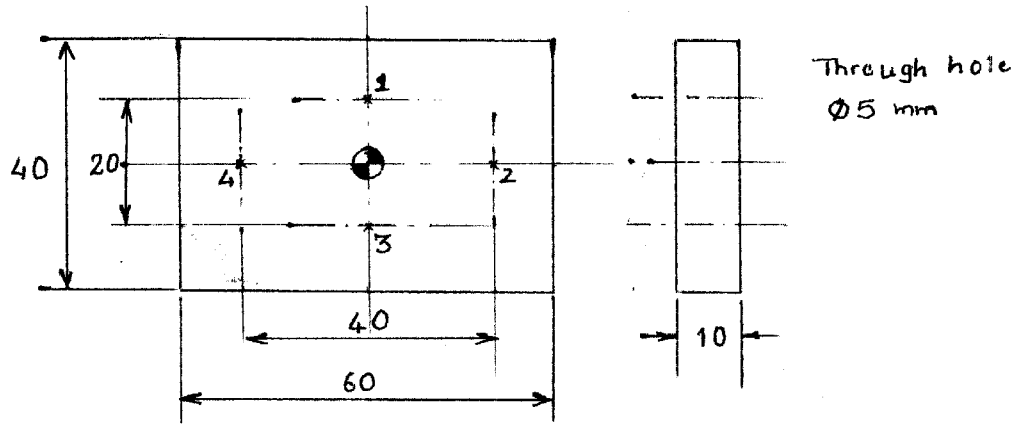


Fig. 1

(2) Sketch the following APT geometry commands; **(03)**
(i). P1 = POINT/ XSMALL, INTOF, L1, C1
(ii). C2 = CIRCLE/CENTRE, P1, LARGE, TANTO, C1

(3) Discuss fix zero versus floating zero system. **(03)**

Q. 5 **Attempt any three.**

(1) (a). Define PS, DS and CS with respect to APT. **(3)**
(b). Write APT geometry and motion commands for the part shown in Figure 2. **(7)**

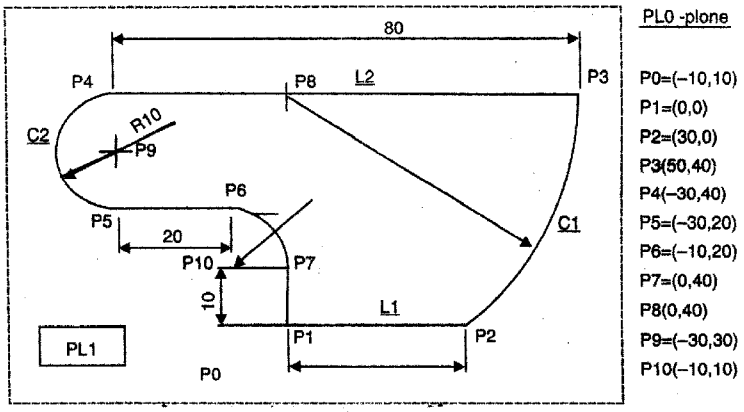
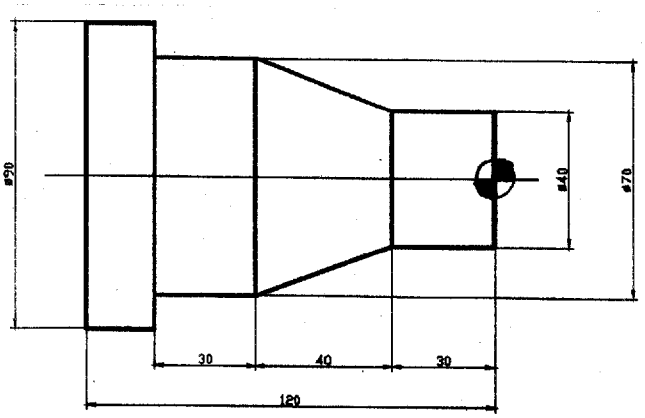


Fig. 2

(2) (a). Enlist the various production technologies in use based on the lot size. **(3)**
(b). Write a short note on components of FMS. **(7)**

(3) (a). Discuss the concept of composite component. **(3)**
(b). Write manual part program for turning the job shown in Figure 3. **(7)**



Raw Material;
M.S. Round bar
ø90 × 120

Fig. 3

(4) (a). Write the manual part program for circular pocket milling and drilling operations as shown in Figure 4. **(6)**

(b). Discuss the main information on the route card **(4)**

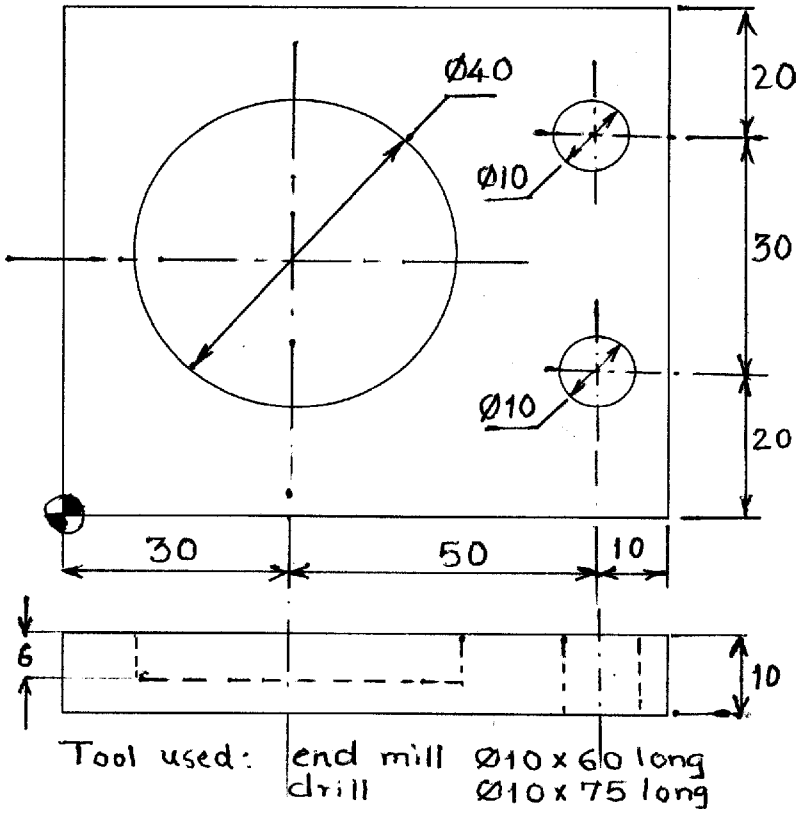


Fig. 4

(5) (a). Punch the following on the NC tape as per EIA code; **(3)**
(i). zero, (ii). S, (iii). End of block

(b). Explain generalize procedure for variant type of CAPP. **(7)**