

5/5/13

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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013

MANUFACTURING ENGINEERING BRANCH

V SEMESTER

MF 9305 CNC MACHINING TECHNOLOGY

(REGULATIONS 2008)

11

Time: 3 Hours

Maximum: 100 Marks

Answer ALL questions

PART A - (10 X 2 = 20 marks)

1. State any four popular CNC controllers.
2. List out any four CNC interpolation methods.
3. What is meant by bifurcated structure and why is it used?
4. Sketch and indicate the errors that can be compensated by using flexible couplings.
5. State any four requirements of spindle drives.
6. What are the limitations of grating type position measuring transducers?
7. What is meant by tool nose compensation: how is it programmed?
8. Distinguish between parametric programming and sub programming.
9. State any four advantages of inserted type cutting tools.
10. State any four features that an ideal work holding device would possess for CNC applications

PART B – (5X16=80 Marks)

- 11 i) Describe salient features of CNC machining centre. (8)
- ii) Enumerate with neat sketches classification of CNC machine tools based on tool motion. (8)

- 12a i) What are the limitations of friction guideways. Describe with neat sketches working principle of any two antifriction LM guideways. (10)
- ii) Describe with neat sketch the principle of planetary roller screw. (6)
- (or)
- 12b i) What are the limitations of ACME threaded leadscrew? Describe with neat sketch working principle of Ballscrew. (10)
- ii) Describe the salient features of CNC spindle assembly. (6)

- 13 a) List out various types of feed drives used in CNC machine tools. Explain with neat sketches, principle and limitations of them. (or)

13 b) Enumerate with neat sketches working principle of the following:

- i) Angular gratings (8)
- ii) Laser interferometer (8)

14a) Write short notes on

- i) Subroutines (5)
- ii) Mirror image (5)
- iii) Canned cycle (6)

(or)

14 b) Fig. Q14 b) shows a die aperture to be machined from a pre-machined block held in a vice on a milling machine. Write a part program to

- (i) Mill out the aperture using a 10mm diameter slot drill. (6)
- (ii) Drill and ream the dowel holes. (8)
- (iii) Mention the assumptions made. (2)

15 a) write short notes on

- i) Sintered carbides
- ii) Chucks
- iii) Machine vice
- iv) CBN

(4X4 =16)

(or)

15 b) Explain the terms, "qualified", "semi-qualified", "preset tooling" and "indexable inserts" in the context of CNC tooling.

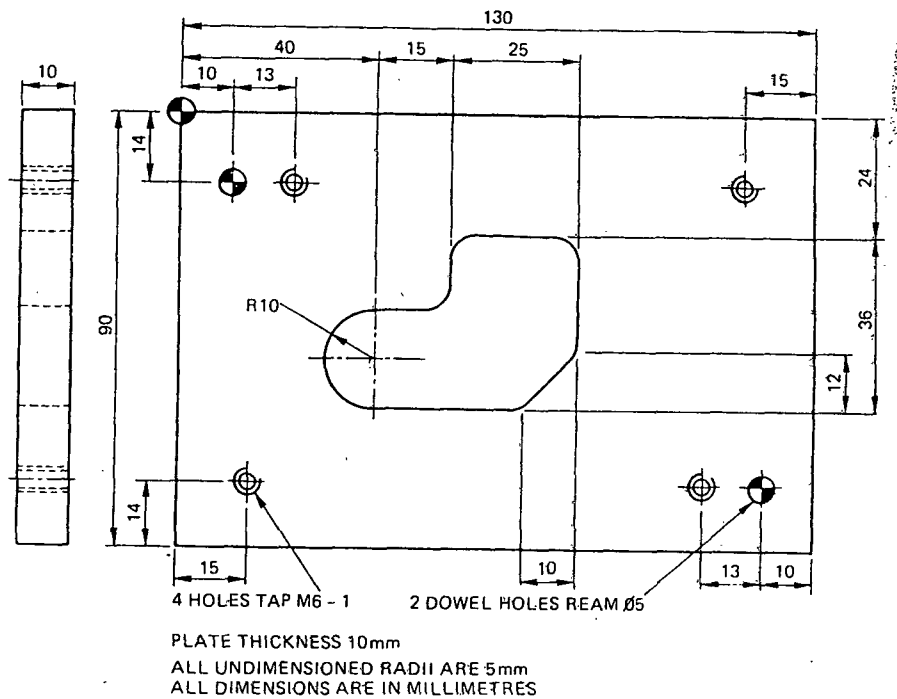


FIG Q14B)