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B.E. / B.Tech. DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2011
MANUFACTURING ENGINEERING BRANCH
V SEMESTER (REGULATIONS 2004)

MN 372 CNC TECHNOLOGY

Time: 3 Hours

Maximum: 100 Marks

Answer ALL questions

PART A - (10 X 2 = 20 marks)

1. State any four advantages of CNC machine tools.
2. List out any four CNC interpolation methods.
3. State true or false. Justify your answer. Aerostatic guideways can be effectively used in CNC turning centre.
4. Sketch and indicate the errors that can be compensated by using flexible couplings.
5. How do you sense the direction of movement of grating type transducer?
6. What are the requirements of spindle drives for CNC applications?
7. Distinguish between parametric and sub programs.
8. State the functions of the following G & M codes:
G02 G03 M06 M04
9. State any four features that an ideal work holding device would possess for CNC applications
10. State various daily activities to be performed in the preventive maintenance of CNC machine tools.

PART B – (5X16=80 Marks)

- 11 i) What are the limitations of ACME threaded leadscrew? Enumerate with neat sketch working of Ballscrew. State its advantages. (10)
ii) Explain with neat sketches classification of CNC machines based on tool motion. (6)
- 12a i) Enumerate with neat sketch salient features of CNC EDM. (8)
ii) Describe with neat sketch working principle of CNC machining machine. (8)

(or)

- 12 b i) List out various types of antifriction LM guideways used in CNC slides.
Describe any one antifriction LM guide way. (8)
- ii) Enumerate salient features of spindle assembly in CNC machine tool. (8)

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

- 13 b) Describe with neat sketches working principle of the following axis measuring system:
(i) Angular grating (8)
(ii) Laser interferometer (8)

14 a) What is meant by canned cycle? Describe with examples any three canned cycle.
(or)

14 b) Write complete CNC part program for the component shown in Fig. 14 b). Mention the assumptions made.

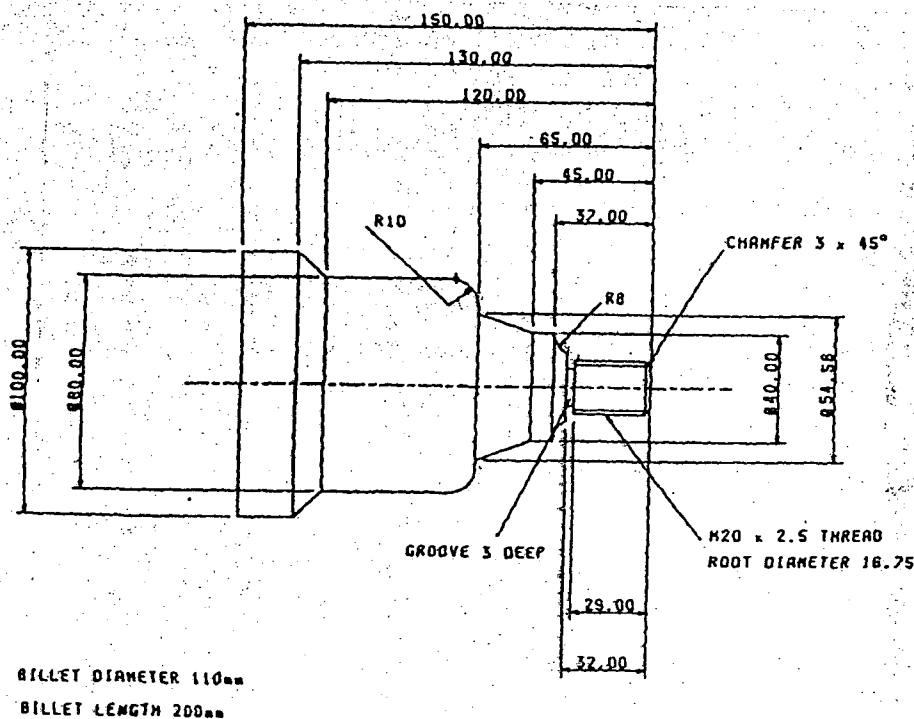
15a) Explain the terms, "qualified", "semi-qualified", "preset tooling" and "indexable inserts" in the context of CNC tooling.

(or)

15 b) Write short notes on

- i) CBN
- ii) Chucks
- iii) Machine vice
- iv) Carbides

(4X4 =16)



All dimensions in mm.

Fig a 14b)