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**B.E. DEGREE END SEMESTER EXAMINATIONS, NOV/ DEC 2012**

**MANUFACTURING ENGINEERING BRANCH**

**V SEMESTER (REGULATIONS 2008)**

**MF 9305 CNC MACHINING TECHNOLOGY**

Time: 3 Hours

Maximum: 100 Marks

**Answer ALL questions**

**PART A - (10 X 2 = 20 marks)**

1. List out any four commonly used CNC controllers.
2. Distinguish between CNC and DNC.
3. What is meant by preloading of ballscrew?
4. What are the advantages of timing belts?
5. State true or false. Justify your answer. Stepper motor can be used as feed drive for CNC machining centre.
6. What are the limitations of grating type axis measuring system?
7. What is meant by cutter radius compensation: how is it programmed?
8. What is meant by parametric programming?
9. State various weekly activities to be performed in the preventive maintenance of CNC machine tools.
10. Describe briefly ISO classification of carbide inserts.

**PART B – (5X16=80 Marks)**

- 11 i) Enumerate the classification of CNC machines based on type of tool motion. (8)
- ii) Describe salient features of CNC machining centre. (8)
- 12a i) What are the requirements of guideways used in CNC machine tools? Explain with neat sketches working principle of any two antifriction guideways. (10)
- ii) Enumerate with neat sketch the principle of recirculating roller screw. (6)
- (or)**
- 12b i) Describe with neat sketch working principle of Ballscrew. State its advantages and limitations. (10)
- ii) Discuss salient features of CNC spindle assembly. (6)
- 13a) List out various feed drives. Compare advantages and limitations of them.
- (or)**

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

i) Angular gratings

(8)

ii) Laser interferometer

(8)

14 a) What is meant by canned cycle? Enumerate with example the following canned cycles.

i) Multiple turning cycle

ii) Multiple grooving cycle

iii) Peck drilling cycle

iv) Multiple thread cutting cycle

(or)

14 b) The component shown in Fig Q. 14 b) is to be machined from a low carbon steel plate which is approximately 1.5 mm oversize on the profile and has been previously machined to produce the two locating dowel holes, and the clamping hole. It is held in a fixture which locates and clamps the component. Write a part program using absolute units to

Mill the profile using a 16mm diameter end mill.

Mill the 10 mm slot.

Drill the four 4mm diameter holes.

List the assumptions made.

15 a) Discuss briefly any four important requirements of cutting tool materials.

Enumerate any four cutting tool materials used in CNC machine tools.

(or)

15b) Write short notes on

i) Qualified tooling

ii) Preset tooling

iii) Chucks

iv) V' blocks and angle plates

(4X 4 = 16)

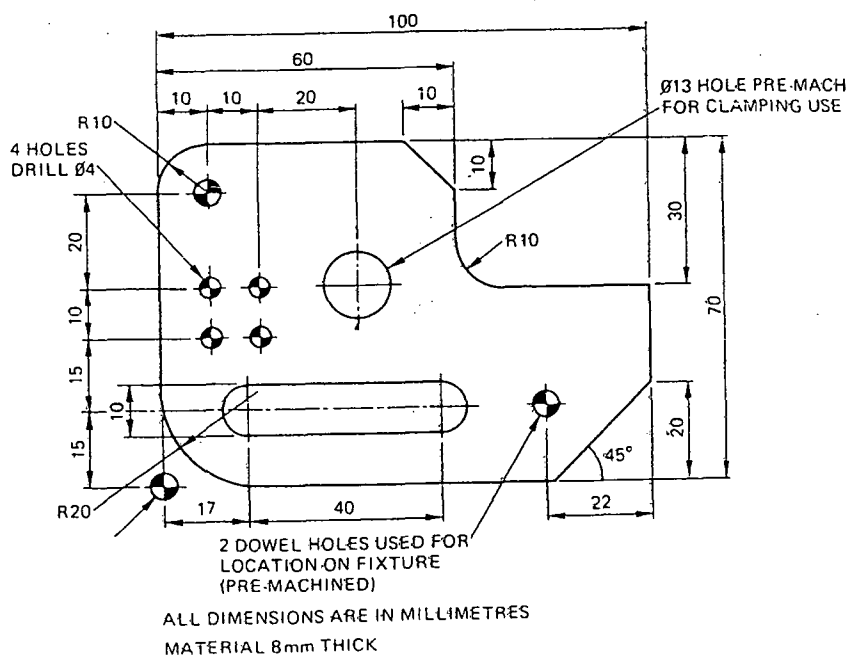


Fig Q 14 B)