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B.E /B.Tech (Full Time) END SEMESTER EXAMINATIONS, APRIL / MAY 2019

MANUFACTURING ENGINEERING BRANCH

V Semester

MF 8501 CNC Technology

(Regulations 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. List out any four CNC interpolator.
2. State any four benefits of Computer Aided Inspection.
3. What is meant by preloading of ball screw?
4. Sketch and indicate the errors that can be compensated by using flexible couplings.
5. What are the factors to be considered while designing a spindle for CNC machine?
6. How do you sense the direction of movement of grating type transducer?
7. What is meant by tool nose radius compensation: how is it programmed?
8. Differentiate between parametric program and sub program.
9. State true or false. Justify your answer. PCD inserts can be effectively used for machining of medium carbon steel.
10. State various daily activities to be performed in the preventive maintenance of CNC machine tools.



Part – B (5 x 16 = 80 marks)

11. i) Enumerate the classification CNC machine tools. (8)
 - ii) Describe with neat schematic diagram features of CNC EDM. (8)
 12. a i) What are the limitations of ACME threaded leadscrew? Explain with neat sketch working principle of ball screw. (10)
 - ii) Describe two types of structural configuration of CNC machining centre. (6)
- (or)
- b i) What is meant by stick-slip phenomena? Describe with neat sketches working principle of any two antifriction LM guideways. (10)
 - ii) Describe with neat sketch principle of recirculating roller screw. (6)

13. a i) Describe with neat sketch working principle of linear motor used as feed drive in CNC machine tool. (8)
- ii) List out various feed drives. Compare advantages and limitations of them. (8)
- (or)
- b) Enumerate with neat sketches working principle of the following axis measuring transducer:
- (i) Angular gratings (8)
- (ii) Laser Interferometer (8)
14. a) What is meant by canned cycle? Enumerate with example any three canned cycle. (16)
- (or)
- b) Write CNC part program for the component shown in Fig Q. 14 b). Mention the assumptions made. (16)
15. a) Explain the terms "qualified", "semi-qualified", "preset tooling" and "indexable inserts" in the context of CNC tooling. (16)
- (or)
- b) Write short notes on (4X 4 = 16)
- Hydraulic chuck
 - Machine vice
 - CBN
 - Economics of CNC machine

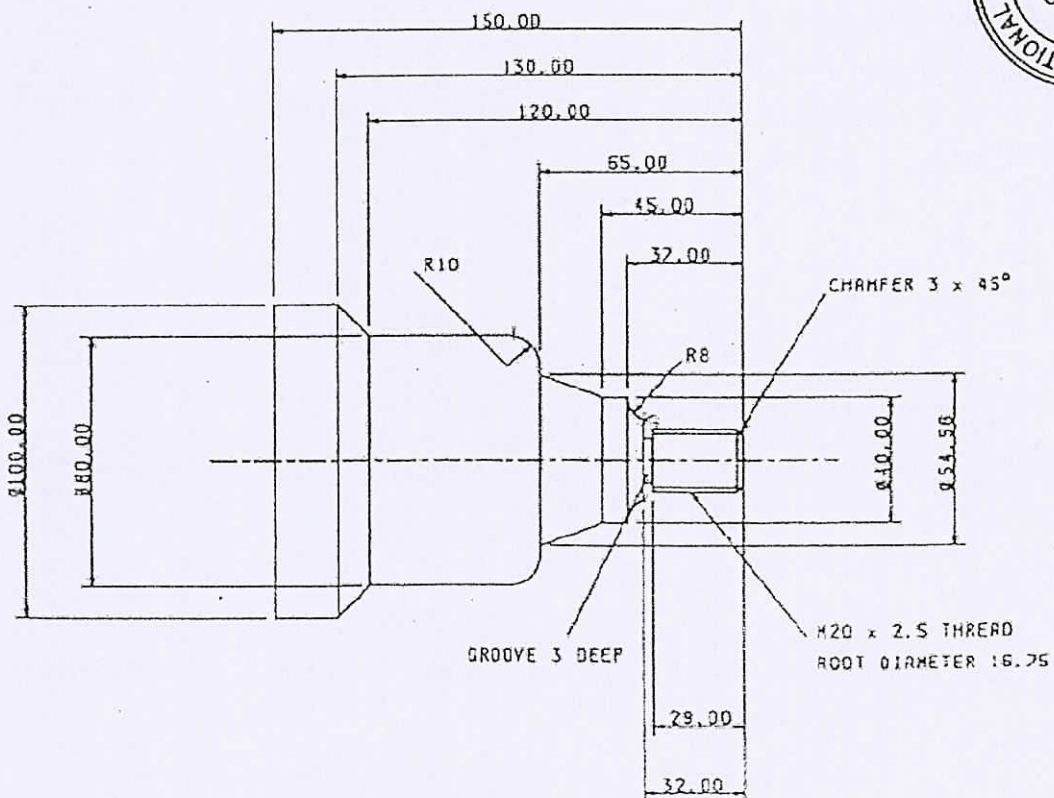


Fig Q 14 b)