

[4760] - 199

M.E. (Mechanical) (CADM&amp;E) (Semester - II)

COMPUTER AIDED MANUFACTURING

(2012 Pattern)

Time : 3 Hours]

[Maximum Marks : 100

*Instructions to the candidates:*

- 1) Answers to the two sections should be written in separate answer books.
- 2) Attempt any three questions from each section.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Use of Electronic pocket Calculator is allowed.
- 6) Assume Suitable data, if necessary and mention it clearly.

**SECTION - I**

- Q1)** a) Explain with suitable example smart automation [6]  
 b) Explain advanced automation functions in detail [6]  
 c) Explain the modern maintenance and diagnostics systems used in automated systems [6]
- Q2)** a) Explain different NC motion control modes and interpolations [8]  
 b) Explain with neat block diagram the configurations of computer numerical control [8]
- Q3)** a) Differentiate between open loop and closed loop control systems [6]  
 b) Write a complete NC part program for the component shown in Fig. 1, Draw the tool path and take raw material MS blank of 100 mm × 50φ, spindle speed 600 RPM and feed 0.1 mm/rev. all dimensions are in mm [10]

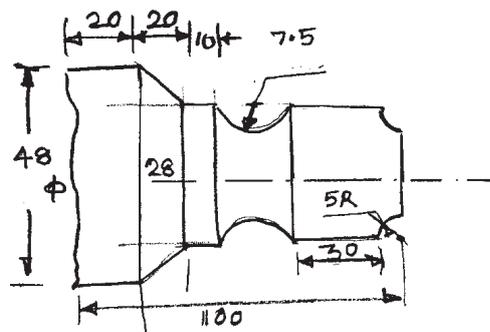


Fig. 1, Q. No. 3(b)

- Q4)** a) Explain the engineering analysis of NC positioning systems [6]  
 b) Write a complete APT part program to generate end profile for the component shown in Fig. 2. Use post processor call statement MACHINE MILL, Draw the tool path and take raw material stainless steel blank of 160 mm × 100 mm, spindle speed 800 RPM and feed 0.15 mm/rev. all dimensions are in mm. [10]

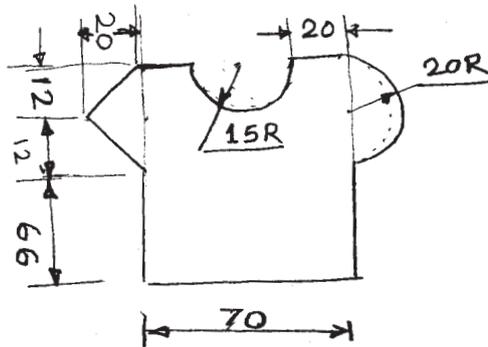


Fig. 2, Q. No. 4(b)

- Q5)** a) Explain the principle functions of CNC [8]  
 b) Explain the major features and elements of CNC machines [8]

**SECTION - II**

- Q6)** a) Explain product flow analysis in detail [10]  
 b) Explain GT applications in manufacturing processes [8]

- Q7)** a) Explain planning and implementation issues of FMS [10]  
 b) Explain FMS optimization in detail [6]

- Q8)** a) Explain Siemens concept CIM with neat block diagram [8]  
 b) Explain NIST – AMRF Hierarchical CIM model [8]

- Q9)** a) Explain in brief types of process planning and discuss their merits over each other. [10]  
 b) Enlist and describe in brief CIM hardware and software. [6]

- Q10)** a) Write short notes on MRP- I [6]  
 b) Explain the principle of PDM & PLM . [5]  
 c) Write short notes on JIT concept [5]

