Time : 3 Hours   **Total marks : 80**

Note:

1) Question no 1 is **COMPULSORY**

2) Attempt any **THREE** questions from remaining five questions

3) Draw **NEAT SKETCHES** wherever applicable

4) Cleary mention **ASSUMPTIONS** if any

Q1. Solve any five

A. Explain basic components of numerical control system.   4

B. Explain Rotary/ Angular position measuring transducers   4

C. Explain importance of cutting tool in CNC   4

D. What is mean by following M-Codes   4

   M03, M02, M09, M05

E. Explain different types of machine tool maintenance.   4

F. Explain APT Language.   4
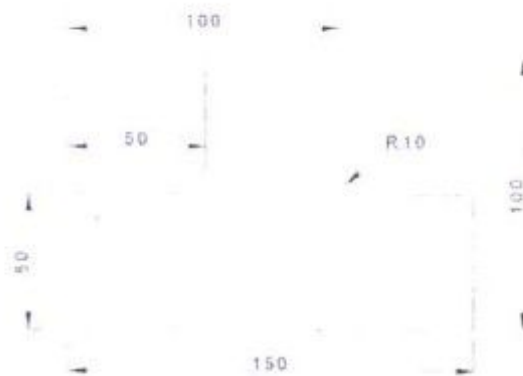
Q2.A] Write a program for following profile use multi cut canned cycle for every operation.

   Also write G90 co-ordinates.   10
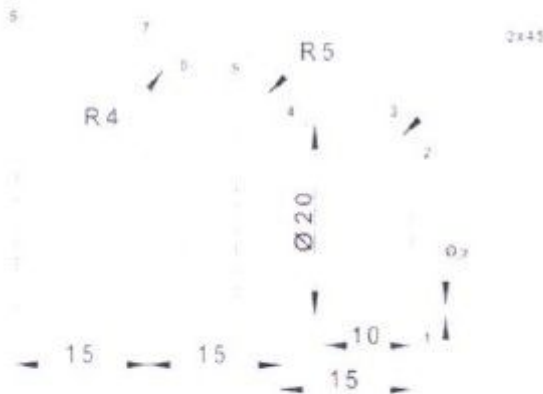
B] Write part programming for following profile using APT language   10

Q3.

A] Explain adaptive control system with its block diagram.

Draw block diagram of ACO system.   10

B] List out different CAPP languages.   5

C] What is program reader? Explain punched tape reader.   5

Q4.

A] What is mean by Encoder? Explain its applications.   10

Write short note on MCU.

B] Explain advantages and disadvantages of CNC machine   5

C] What is low cost automation? Write criteria for low cost automation?   5

Q5.

A] Write a program using canned cycles for following milling profile 10
   Assume suitable data.

Operations to be perform

  1. Face milling

  2. Drilling

  3. Tapping

B] Write short note on threading insert & draw its insert diagram. 5

C] What are the factors that should be considered while selecting components

for machining on CNC machine? Explain in detail. 5

Q6.

A] Explain CNMG120408 TR 10 turning insert specification in detail. 8

B] Draw diagram of standard tool holder for milling machine & Explain. 4

C] Write a syntax of G00, G01, G02, G03 command & Explain it for CNC Lathe. 4

D] What is backlash? How to measure & compensate the backlash error? 4