

P. Pages : 1

Time : Three Hours



GUG/W/16/3810

Max. Marks : 70

- Notes :
1. All questions carry marks.
 2. Answer **any five** questions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is NC? Distinguish between CNC and DNC. 7
b) Explain qualified, semi qualified and preset tooling for CNC machine tool. 7
2. a) Describe the various methods of NC part-programming. 7
b) Explain ISO code for NC tape preparation. 7
3. a) Describe different methods of tool mounting for CNC machine. 6
b) Explain various types of statements used in APT. Give suitable examples. 8
4. a) Describe the various problems with conventional NC, that led to the development of CNC and DNC. 6
b) Explain the following for CNC:- 8
 - i) M-Codes
 - ii) Point-to-point NC
 - iii) Open-loop and closed loop NC.
 - iv) Absolute and Incremental positioning.
5. a) What is Adaptive control? Explain. 7
b) Write a note on End Effector of a Robot. 7
6. a) Derive the forward and inverse kinematics of 3-DOF Robot. 8
b) What are the specifications of robot? How will you select a robot for processing operation? Explain. 6
7. a) Describe work volume of any two robot configurations. Draw neat sketches. 8
b) What are the various drives in robot? Explain. 6
8. Write notes on the following:-
 - a) Sensors in Robot. 5
 - b) Robot Joints 5
 - c) SCARA Robot 4
