

Printed Pages – 3

Roll No. :

337745(37)

B. E. (Seventh Semester) Examination,

April-May 2020/NOV-DEC 2020

(New Scheme)

(Mech. Engg. Branch)

NUMERICAL CONTROL of MACHINES TOOLS

Time Allowed : Three hours .

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each question is compulsory.

Attempt any two parts from parts (b), (c) and (d) of each question.

Unit-I

1. (a) Define machine tool. 2
(b) Draw a schematic of a CNC machine tool and name its functional blocks. 7

[2]

- (c) Write down advantages and limitations of NC system? Also classify NC system. 7
- (d) Explain in brief : (any **two**) 7
- (i) Control resolution
 - (ii) Accuracy
 - (iii) Repeatability

Unit-II

2. (a) Define feed back system. 2
- (b) Explain the basic design criteria in designing a typical machine tool structure. 7
- (c) Explain position control and its significance in NC machine. 7
- (d) Explain open-loop positioning and closed-loop positioning system of NC machine. 7

Unit-III

3. (a) What is tool presenting? 2
- (b) What is the purpose of a part program? Explain the function of punched tape in an NC machine tool. 7
- (c) What is post-processor? Discuss the functions of the post-processor. 7

[3]

- (d) What is a canned cycle? Explain the format used for it and various codes used in canned cycle. 7

Unit-IV

4. (a) What are types of computer numerical control. 2
- (b) What is adaptive control? What are the elements of an adaptive control machining system? 7
- (c) Explain sampled data techniques used in CNC machine. 7
- (d) Explain the function of microcomputers used in CNC machine. 7

Unit-V

5. (a) Write the function of DNC system. 2
- (b) What are the various features of CNC machining centre? Explain about the types of machining centre. 7
- (c) What are the types of CNC lathes? Explain the working function of any one of them. 7
- (d) Explain the functions of : (any **one**) 7
- (i) Automatic tool changer
 - (ii) Automatic pallet changer