

**Roll No.**

**Total No. of Pages : 01**

**Total No. of Questions : 08**

**M.Tech. (CAD/CAM) (Sem.-3)**

## COMPUTER CONTROL IN MACHINE TOOLS

**Subject Code : ME-504**

**M.Code : 23508**

**Time : 3 Hrs.**

**Max. Marks : 100**

### INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

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|----|----|--|----|
| 1. | a) | How will you justify the use of CNC Machines in todays' context?   | 10 |
|    | b) | " <i>CNC machines can work on optimized cutting parameters</i> ". Comment on this statement.   | 10 |
| 2. |    | How and why is the structure of a CNC turning center machine different from conventional lathe? Explain  | 20 |
| 3. | a) | What is adaptive control? How is adaptive control applied in manufacturing?  | 10 |
|    | b) | What is a combined CNC/DNC system? Explain the types and application areas of DNC Systems.   | 10 |
| 4. |    | How will you select a spindle drive for a CNC machine?   | 20 |
| 5. | a) | How are the CNC machines Classified? Discuss the salient features of each type.  | 8  |
|    | b) | Explain the working of linear encoder and rotary encoder used in CNC machines.   | 12 |
| 6. | a) | Explain the terms tool zero, work zero, floating zero and tool offset in CNC machines.   | 5  |
|    | b) | How are work holding devices in CNC machines different from conventional machines.   | 10 |
|    | c) | Explain the process of tool presetting in CNC machines.  | 5  |
| 7. | a) | What is the importance of axis identification in CNC machines? With the help of neat sketches explain how axis are identified for horizontal milling machine and multiple axis drilling machine. | 15 |
|    | b) | What is the importance of tool radius compensation? How is tool radius compensation applied in CNC machines?   | 5  |
| 8. | a) | Discuss the features of any CAM software available in your College/Department.   | 10 |
|    | b) | Explain the different steps in CNC part programming.   | 10 |

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**