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Roll No. .... 181755/171755/121755

### 5th Sem. / Mechanical Engg

### Subject : CNC Machines and Automation

Time : 3 Hrs.

M.M. : 100

#### SECTION-A

**Note:** Multiple choice Questions. All questions are compulsory (10x1=10)

(Course Outcome/CO)

- Q.1 The setting of tools to a specific length, away from the machine is called (CO-1)  
a) Tool on setting                      b) Specific setting  
c) Presetting                              d) Post setting
- Q.2 CNC drilling machine is considered to be a type of (CO-1)  
a) Point-to-point controlled machine  
b) Straight line controlled machine  
c) Continuous path-controlled machine  
d) Servo-controlled machine
- Q.3 The purpose of using recirculating ball screw nut mechanism in CNC machine is \_\_\_\_\_. (CO-1)  
a) To reduce the setup time  
b) For higher surface finish  
c) For carrying out up milling  
d) To remove backlash
- Q.4 A stepper motor (CO-1)  
a) Can control the angular displacement quite precisely  
b) Cannot control the angular displacement precisely  
c) Cannot be used for positioning of tables and tools in CNC machine tools

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d) Cannot be readily interfaced with microprocessor-based controller

- Q.5 Which of the following feedback device translate physical motion into electrical data? (CO-1)  
a) Encoder                                  b) transducer  
c) Digital system monitoring  
d) None of the above
- Q.6 \_\_\_\_\_ is not types of NC program reader? (CO-1)  
a) Card readers  
b) Punched tape readers  
c) Laser taper reader  
d) Mechanical tape reader
- Q.7 The function of sideways in CNC is to \_\_\_\_\_ (CO-1)  
a) Reduce friction                      b) Reduce Wear  
c) Improve smoothness  
d) All of the mentioned
- Q.8 M-codes are also know as (CO-2)  
a) modal codes                              b) spindle speed codes  
c) machine codes  
d) miscellaneous codes
- Q.9 Which of the following code will give circular interpolation clockwise? (CO-4)  
a) G00    b) G01  
c) G92    d) G02
- Q.10 Which of the following code is used in programming in absolute coordinates? (CO-2)  
a) G92    b) G01  
c) G91    d) G02

#### SECTION-B

**Note:** Objective type questions. All questions are compulsory. 10x1=10

- Q.11 The CNC control system which has feedback element are also called as \_\_\_\_\_ (CO-1)
- Q.12 Expand PLC (CO-6)

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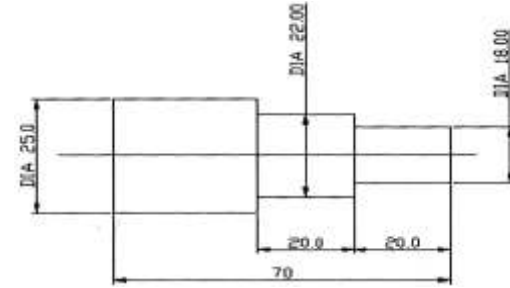
- Q.13 The axis perpendicular to work holding surface of a CNC machine is \_\_\_\_\_ (CO-3)
- Q.14 The two feedback device used in CNC machine are \_\_\_\_\_ and \_\_\_\_\_ (CO-1)
- Q.15 The input command, In servo motor is in the form of \_\_\_\_\_ (CO-1)
- Q.16 G-codes are also known as \_\_\_\_\_ (CO-1)
- Q.17 \_\_\_\_\_ code will give circular interpolation anti-clockwise (CO-2)
- Q.18 \_\_\_\_\_ code will give circular interpolation anti-clockwise. (CO-3&CO4)
- Q.19 Expand LVDT (CO-1)
- Q.20 Give binary equivalent of 27 (CO-1)

### SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. 12x5=60
- Q.21 Enlist the advantages of DNC over conventional machines (CO-1)
- Q.22 Explain the type of DNC (CO-1)
- Q.23 Describe the rules for axis identification in CNC (CO-2)
- Q.24 Write short note on servo motor (CO-1)
- Q.25 Explain roller type slideways. (CO-5)
- Q.26 Describe various swarf remove methods in CNC machines. (CO-5)
- Q.27 Write short note on 18 degree ATC (CO-1)
- Q.28 Explain various functions performed while management of toolroom (CO-1)
- Q.29 Write short note on tachometers. (CO-1)
- Q.30 Explain the concept of tool radius compensation (CO-7)
- Q.31 Describe mirror image and its command (CO-7)
- Q.32 What are the common faults in PC components of NC operations. (CO-5)
- Q.33 Discuss the concept of A.I (CO-6)
- Q.34 Write a finishing cut program of step turning. (CO-6)

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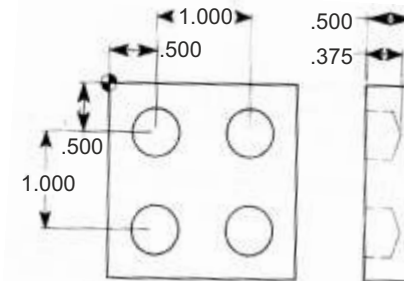
- Q.35 Write a finishing cut program of step turning. (CO2&CO3)



### SECTION-D

- Note:** Long answer type questions. Attempt any two out of three questions. 2x10=20
- Q.36 Give a detailed specifications of CNC lathe machine. (CO-3)
- Q.37 Write short note on following: (CO-1)
- Opto interrupt
  - Any 5 NC words
- Q.38 Write blind hole cut program of the following object. Assume any missing data and dimensions: (CO-2)

**Note:** Course Outcome (CO) mentioned in the question paper is for official purpose only.



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