

No. of Printed Pages : 4 181755/171755/  
Roll No. .... 121755/031755

**5th Sem / Branch : Mech. Mecatronics, Prod, T&D,  
CAD/CAM, Mech., Engg. (Fabrication Tech.)  
Mechanical Engg. (CAD/CAM Design & Robotics)  
Sub.: CNC Machines & Automation**

Time : 3Hrs. M.M. : 100

## **SECTION-A**

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

- Q.1 In a basic NC machine programmed instructions are stored in

  - a) Punched tape
  - b) Graphic terminal
  - c) Head box
  - d) None of the above

Q.2 CNC machining centers do not include operations like.

  - a) Milling
  - b) Boring
  - c) Welding
  - d) Tapping

Q.3 In how many ways CNC machines tool systems can be classified

  - a) Two
  - b) Three
  - c) Four
  - d) Five

Q.4 In part programming interpolation is used for obtaining trajectory

  - a) Helicoidal
  - b) Pentagonal
  - c) Triangular
  - d) Zigzag

(1)

181755/171755/  
121755/031755

- Q.5 Advantages of potentiometer.

  - a) Easy to use
  - b) Proven technology
  - c) Inexpensive
  - d) All of the above

Q.6 Which of the following code will give circular interpolation arc counter clock wise:

  - a) G01
  - b) G02
  - c) G03
  - d) G00

Q.7 Which is not the tool material property on the basis of construction:

  - a) Solid
  - b) Diamond
  - c) Brazed
  - d) Inserted bit

Q.8 Problems in Pneumatic components are not in

  - a) Cylinders
  - b) Piston
  - c) Solenoid
  - d) Valve

Q.9 Which of the following are not components of flexible tooling.

  - a) Encoder
  - b) Tool magazine
  - c) Work holder
  - d) Tool changing mechanism

Q.10 Canned cycle is also known as

  - a) Fixed cycle
  - b) Movable cycle
  - c) Carnot cycle
  - d) None of above

(2)

181755/171755/  
121755/031755

## **SECTION-B**

**Note:** Objective type questions. All questions are compulsory.  $(10 \times 1 = 10)$

Q.11 \_\_\_\_\_ logic is used in PLC.

Q.12 Explain DNC.

Q.13 Give binary number of 26.

Q.14 Beds are made of \_\_\_\_\_ material.

Q.15 In part programming interpolation is used for obtaining \_\_\_\_\_ Trajectory.

Q.16 Explain FMS.

Q.17 NC machines are best suitable for \_\_\_\_\_ production.

Q.18 Sub routines are also known as \_\_\_\_\_.

Q.19 Miscellaneous operations are addressed by \_\_\_\_\_.

Q.20 The axis perpendicular to work holding surface of a CNC machine is .

## **SECTION-C**

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.  $(12 \times 5 = 60)$

Q.21 What is canned cycle?

Q.22 Explain briefly on-line diagnostic.

Q.23 Enumerate the criteria for designing the control system of a CNC.

Q.24 Explain two work holding devices used in CNC machines.

Q.25 What are the limitations of cutter radius compensation.

Q.26 Describe mirror image and its command.

Q.27 Explain LVDT in brief.

Q.28 Differentiate between proximity and range sensor.

Q.29 Explain automation assembly.

Q.30 Explain absolute and incremental system.

Q.31 Write short note on any five NC words.

Q.32 Write short note on opto interrupt.

Q.33 List any five benefits of FMS.

Q.34 Differentiate between open loop and close loop system.

Q.35 What is actuator? Define any one.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions.  $(2 \times 10 = 20)$

Q.36 Explain with neat sketch working of ball screw Assembly in a CNC machine.

Q.37 Write short note on :

- a) Servomotor      b) Potentiometer

Q.38 What are the requirements of slide ways in a CNC system? Explain.

(3)

181755/171755/  
121755/031755

(6080)

(4)

181755/171755/  
121755/031755