

2101253

DIPLOMA OF VOCATION
Mechanical Manufacturing
Subject: CNC Machines & Automation
Subject Code: ME-404
Semester: Third
January 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

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SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

- A. The punched tape contains _____ for NC Machine.
- a) Machine Tool
 - b) Part program
 - c) Buffer Storage
 - d) Workspace
- B. NC Machines are best suitable for _____ production.
- a) Small
 - b) Batch
 - c) Normal
 - d) None of the above
- C. LVDT is a _____.
- a) Capacitive transducer
 - b) Inductive Transducer
 - c) Resistive Transducer
 - d) None of the above
- D. Axis horizontal and parallel to work holding surface of a CNC machine is
- a) X-axis
 - b) Y-axis
 - c) Z-axis
 - d) R-axis
- E. Forces acting on the spindle of CNC machine are-
- a) Axial
 - b) Radial
 - c) Tangential
 - d) Both axial and radial
- F. A numerically controlled drilling machine is an example of _____ machining.

- a) Point to point
 - b) Straight line
 - c) Contouring
 - d) All of the above
- G. FMS stands for
- a) Fixed manufacturing system
 - b) Fixed motion system
 - c) Flexible manufacturing system
 - d) Flexible motion system
- H. A general purpose programmable machine possessing certain anthropomorphic characteristics is called
- a) Group Technology
 - b) AGV
 - c) CIM
 - d) Robot
- I. Fixed automation is also called
- a) Hard Automation
 - b) Soft Automation
 - c) Programmable automation
 - d) Safe Automation
- J. G codes are also known as
- a) Preparatory codes
 - b) Miscellaneous codes
 - c) Go codes
 - d) Central codes

SECTION -B (ESSAY TYPE QUESTIONS)

(5x5=25 Marks)

1. Define NC, CNC and DNC system. Write advantage of using NC manufacturing over conventional manufacturing.
2. Enumerate various elements of MCU.
3. Discuss the salient features of point to point, straight line, and contouring NC systems.
4. What are the common hydraulic and pneumatic components of a CNC? State remedies also.
5. What do you understand by 'Automation'? What are the reasons for Automation?
6. Briefly explain the following-
 - a) Opto-Interrupters;
 - b) Potentiometer
7. What are Automated Guided Vehicles (AGVs). State its application and types.
8. Prepare a part program for obtaining part as shown in figure 1.

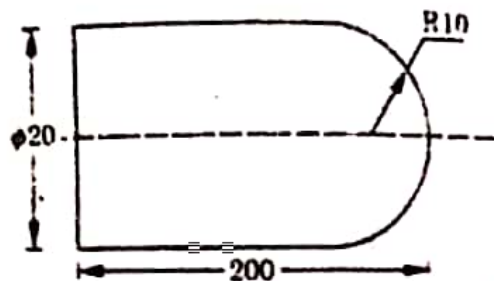


Figure 1

END OF PAPER