Roll No. | | | | | | | | | | | | |

Total No. of Pages: 02

Total No. of Questions: 09

B. Tech (Branch), Semester 7th

AUTOMATION IN MANUFACTURING

Subject Code: BTME702-18

M. Code: 90475

Date of Examination: 30-04-2026

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

Q. No.	Question	Course Outcome	Bloom's Level
	SECTION-A		
1.	Answer briefly:		
a.	Where is computer control used in machining centers?	CO-1	L1
b.	Outline the main systems required for automation.	CO-1	L2
c.	Show the relation between system specification and performance.	CO-2	L1
d.	Explain the working principle of an automated system with an example.	CO-2	L2
e.	State two advantages of electrical drives over mechanical drives.	CO-3	L1
f.	Summarize the importance of signal conditioning in automation.	CO-3	L2
g.	Label the parts of a basic hydraulic circuit.	CO-4	L1
h.	Compare hydraulic and pneumatic systems in terms of pressure and speed.	CO-4	L2
i.	Draw the basic elements of a CNC system.	CO-5	L1
j.	Compare pneumatic and hydraulic systems.	CO-5	L2
	SECTION-B		
2.	Analyze how computer control of machining centers helps in reducing human error?	CO-1	L4
3.	Compare various fabrication methods used in automated system design and analyze their suitability, and limitations in different industrial applications.	CO-2	L4
4.	Explain COMPUTER INTEGRATED MANUFACTURING (CIM) in detail with block diagram	CO-4	L5
5.	Construct a block diagram of a microcontroller-based Data Acquisition (DAQ) system.	CO-3	L3
6.	Explain the classification of NC machines based on the control system. Differentiate between Point-to-Point (PTP), Straight Cut, and Contouring control systems with suitable examples.	CO-5	L5
	SECTION-C		
7.	Construct a schematic showing integration of actuators and controllers in an automated system.	CO-2	L3
8.	Categorize automation mechanisms based on motion type (linear, rotary, transfer) and analyze their characteristics, working principles, and suitability for different industrial applications.	CO4	L4
9.	Defend whether flexible automation is the future of manufacturing industries, and analyze its advantages, limitations, and impact on productivity and competitiveness under modern industrial conditions.	CO-1	L5

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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.