



## DEPARTMENT OF MECHATRONICS

## VII SEMESTER B.TECH. (MECHATRONICS)

## END SEMESTER EXAMINATIONS, Dec 2021

## SUBJECT: INDUSTRIAL INTERNET OF THINGS [MTE 4304]

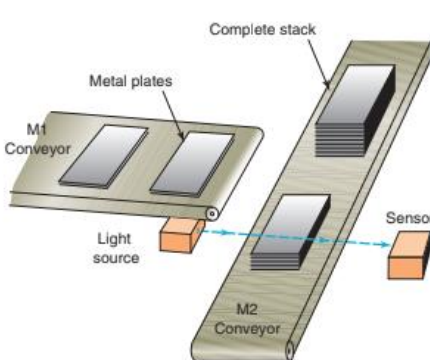
Date: 29/12/2021

Time: 75+10 min

MAX. MARKS: 20

## Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Data if not provided may be suitably assumed and justified.

Q. No	PART -B Descriptive Questions	M	CO	PO	LO	BL
1A.	Illustrate the flow diagram of the IoT-based smart flow meter and mention its application.	5	CO1	PO1,2	C1, C2	Understand
1B	Describe the HART Protocol? Mention the four operations of the HART Protocol.	3	CO3	PO1,2	C1, C2	Understand
1C	Draw the equivalent ladder logic for the boolean expression. $Y = (A'B'C') + (A+B+C). D'$	2	CO2	PO1,2,3	C1, C2, C3	Apply
2A	<p>A metal plate counting process is shown in Fig.2A. Develop a sequence ladder for the condition and Interpret the logic with proper I/O and PLC instruction sets.</p> <ul style="list-style-type: none"> <li>Start push button on the M1 conveyor.</li> <li>The light sensor counts the five-metal plate.</li> <li>M2 conveyor wait for five sec to stack the plate.</li> <li>The sequence is repeated until the stop push button is pressed.</li> </ul>  <p>Fig.2A. The metal plate counting process</p>	5	CO2	PO1,2,3	C1, C2, C3	Apply and Analyze

<b>2B</b>	Report the importance of security and describe the basic components of security?	<b>3</b>	<b>CO4</b>	<b>PO1,2</b>	<b>C1, C2</b>	<b>Understand</b>
<b>2C</b>	Discuss the data manipulator instruction and list the few data manipulator instruction sets	<b>2</b>	<b>CO2</b>	<b>PO1,2,3</b>	<b>C1, C2,C3</b>	<b>Understand</b>