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Question Paper Code: 24MEP301

**MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE**

(UGC-AUTONOMOUS)

**M.Tech. II Year I Semester (R24) Regular End Semester Examinations, December - 2025****AUTOMATION AND ROBOTICS****Time: 3Hrs****Max Marks: 60**

Attempt all the questions. All parts of the question must be answered in one place only.

**In Q.No 1 to 5 answer either A or B only**

Q.No	Question	Marks	CO	BL
Q.1(A)	Explain the evolution of automation and robotics from early mechanization to modern AI-driven systems with suitable examples.	12M	1	2
<b>OR</b>				
Q.1(B)	Compare various classifications of robots and analyze how each type is suited for different industrial applications.	12M	1	3
Q.2(A)	Describe ESP32 architecture and justify why it is preferred in modern robotic IoT systems.	12M	2	2
<b>OR</b>				
Q.2(B)	Apply the concepts of ADC and PWM to explain how microcontrollers interface with motors and sensors in robotic systems.	12M	2	3
Q.3(A)	Describe the importance of Thing Speak and Blynk in robotic data logging and monitoring.	12M	3	2
<b>OR</b>				
Q.3(B)	Analyze the suitability of HTTP/REST compared to MQTT for cloud communication in robots.	12M	3	3
Q.4(A)	Explain the concept of robot kinematics and how it influences mobile robot movement.	12M	4	2
<b>OR</b>				
Q.4(B)	Analyze the communication capabilities of BLE and Zigbee for short-range robotic control.	12M	4	3
Q.5(A)	Describe smart environment applications using surveillance and home automation robots.	12M	5	2
<b>OR</b>				
Q.5(B)	Analyze ethical and legal issues associated with deploying service robots in public spaces.	12M	5	3

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