R22

Code No: R22A6951

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Regular Examinations, April 2025

Internet of Things & Its Applications

(ECE, CSE, IT, CSIT, CSE-CS, CSE-AIML, CSE-DS & B.TECH-AIML)

Roll No										

Time: 3 hours **Max. Marks: 60**

Note: This question paper contains two parts A and B
Part A is compulsory which carries 10 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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		PART-A (10 Marks) **(Write all answers of this part at one place)**	**BCLL**	**CO(s)**	**Marks**
1	A	Define Sensor?	**L1**	**CO-I**	**[1M]**
	B	Define actuators?	**L1**	**CO-I**	**[1M]**
	C	Define MQTT?	**L1**	**CO-II**	**[1M]**
	D	What is the purpose f LoRa WAN?	**L2**	**CO-II**	**[1M]**
	E	Define the use of microcontrollers in IoT?	**L1**	**CO-III**	**[1M]**
	F	What is the purpose of Raspberry Pi?	**L2**	**CO-III**	**[1M]**
	G	Define M2M?	**L 1**	**CO-IV**	**[1M]**
	H	What do u mean by Data at rest and data in motion?	**L 2**	**CO-IV**	**[1M]**
	I	Name any one IoT based Application.	**L 2**	**CO-V**	**[1M]**
	J	What are the 2 sensors can be used to Healthcare?	**L 2**	**CO-V**	**[1M]**
		PART-B (50 Marks) **SECTION-I**			
2	A	Explain the enabling technologies of the Internet of Things (IoT) .	**L1**	**CO-I**	**[3M]**
	B	Illustrate the IoT World Forum (IoTWF) standardized architecture with a diagram and explain how it simplifies IoT system development.	**L2**	**CO-I**	**[7M]**
		OR			
3	A	Assess the role of smart objects, sensors, and actuators in an IoT ecosystem.	**L3**	**CO-I**	**[3M]**
	B	Explain the core IoT functional stack with neat diagram.	**L2**	**CO-I**	**[7M]**
		SECTION-II			
4	A	Explain about IEEE 802.15.4 in terms of their physical and MAC layers, topology, and security mechanisms.	**L2**	**CO-II**	**[5M]**
	B	Explain about 6LoWPAN.	**L1**	**CO-II**	**[5M]**
		OR			
5	A	Compare SCADA with other application transport methods used in IoT.	**L4**	**CO-II**	**[3M]**
	B	Assess the advantages and limitations of CoAP and	**L3**	**CO-II**	**[7M]**

		MQTT as application layer protocols for IoT.			
		SECTION-III			
6		Explain about Arduino UNO board in detail with neat pin diagram.	**L2**	**CO-III**	**[10M]**
		OR			
7	A	Define embedded computing logic and its role in IoT system design.	**L2**	**CO-III**	**[5M]**
	B	Explain the difference between a microcontroller and a System-on-Chip (SoC) in embedded computing	**L3**	**CO-III**	**[5M]**
		SECTION-IV			
8	A	Define structured and unstructured data with examples relevant to IoT applications	**L1**	**CO-IV**	**[5M]**
	B	Explain the difference between data in motion and data at rest.	**L3**	**CO-IV**	**[5M]**
		OR			
9	A	Analyze the different cloud service models (IAAS, SAAS, PAAS)	**L4**	**CO-IV**	**[5M]**
	B	Explain about IoT data analytics.	**L5**	**CO-IV**	**[5M]**
		SECTION-V			
10	A	List five IoT applications in smart home automation and briefly describe their functions.	**L2**	**CO-V**	**[5M]**
	B	Explain how IoT enhances security systems in smart buildings.	**L3**	**CO-V**	**[5M]**
		OR			
11		Explain the concept of Industry 4.0	**L2**	**CO-V**	**[10M]**

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