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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Electronics & Telecommunication Engineering **Duration: 3 hrs.**
Course Code: 19ET6PE3IT **Max Marks: 100**
Course: IOT & Wireless Sensor Networks **Date: 17.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Describe the block diagram of IOT device.	*CO1*		**07**
	b)	List the IOT communication models and briefly explain any two.	*CO1*		**08**
	c)	Describe the Web socket based communication APIs	*CO1*		**05**
		UNIT - II			
2	a)	Arrive at the equations for two models of conceptual framework for IoT. Clearly list all the steps involved in arriving at the equations.	*CO2*	*PO1*	**10**
	b)	Briefly describe the M2M architecture for IOT device	*CO1*		**10**
		OR			
3	a)	What are the two types of communication environment in web communication protocols? Describe the unconstrained environment in detail.	*CO1*		**10**
	b)	What are CoAP-SMS? List there features and data interchange sequences along with a neat block diagram	*CO1*		**10**
		UNIT - III			
4	a)	Suggest a protocol for dynamically configuring the IP address and the other networks. List all the steps involved.	*CO2*	*PO1*	**05**
	b)	Briefly list the features, advantages and concerns of cloud computing platforms	*CO1*		**08**
	c)	Describe the TCP/IP suite four layers generating the data stack for the network and for physical layer during internet communication	*CO1*		**07**
		OR			
5	a)	List the features of IPV4, IPV6 and RPL	*CO1*		**10**

		b)	Describe the IoT cloud based services using Nimbits. List the Features of Nimbits PaaS services	*CO1*		**10**
			UNIT -IV			
	6	a)	Design an Arduino controlled traffic lights at a road junction with the following assumptions: three traffic lights red, yellow and green needs to be controlled on each of four north, east, south and west clockwise pathways. Let twelve GPIO pins on Uno connect twelve number externally connected LEDs (four sets of three R, G, and Y LEDs each). The port LEDs represent the traffic lights during the prototype development and testing stage	*CO3*	*PO2*	**10**
		b)	Describe the five levels for software development for applications and services for IOT or M2M.	*CO1*		**10**
			UNIT -V			
	7	a)	What are the challenges for WSNs? Describe the characteristic requirements and the mechanisms.	*CO1*		**08**
		b)	Arrive at the equations for the energy consumption of the sensor nodes considering the operation states with different power consumption.	*CO2*	*PO1*	**08**
		c)	Briefly describe about dynamic voltage scaling.	*CO1*		**04**

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