Code No: **R204104Q** **R20** **Set No. 1**

IV B.Tech I Semester Regular Examinations, January – 2024

IOT AND APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT - I

1 a) List the sources of IoT development board which can be used for prototype Development. [7]
b) What does M2M mean? [7]

(OR)

2 a) Draw the internal architecture of Three domains of M2M architecture and explain its operation. [7]
b) Give examples of M2M applications. [7]

UNIT - II

3 a) Draw the internal architecture Raspberry Pi and explain its operation? [7]
b) List out different applications of Raspberry Pi. [7]

(OR)

4 a) Explain Arduino. What are the things need to be considered for developing on the Arduino? [7]
b) Give a detailed overview of the ARM Processor families. [7]

UNIT - III

5 a) Explain the terms Sensing and Actuation along with examples. [7]
b) Write a Python program for Keyboard interfacing. [7]

(OR)

6 a) Draw the protocol architecture of UDP and explain. [7]
b) What are the advantages and disadvantages of Bluetooth? [7]

UNIT - IV

7 a) What do you mean by data storage? What are the different schemas for a data store? [7]
b) How authentication and authorization of devices is achieved. [7]

(OR)

8 a) Why is device authentication necessary for the IoT? [7]
b) What is device integration? Explain its implementation. [7]

UNIT - V

9 a) What is Home Automation? Explain any one case study of Home Automation along with IoT. [7]
b) Determine the IoT levels for designing structural health monitoring system. [7]

(OR)

10 a) Explain service specification and information model for Home Intrusion Detection system using IoT Design Methodology. [7]
b) Define how the IoT technology can be implemented in fire detection. [7]

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Code No: **R204104Q** **R20** **Set No. 2**

IV B.Tech I Semester Regular Examinations, January – 2024

IOT AND APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks

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UNIT - I

1	a)	Explain working of IoT gateways?	[7]
	b)	What are the major layers in IoT Architecture.	[7]
		(OR)	
2	a)	What are the levels in M2M having close similarity with IoT?	[7]
	b)	Explain the advantages and disadvantages of an IoT.	[7]

UNIT - II

3	a)	List out different Thumb Instruction Set and explain each one in detail.	[7]
	b)	What is special about the ARM Ecosystem?	[7]
		(OR)	
4	a)	Explain the operation of Cortex-A class processor along with block diagram.	[7]
	b)	Describe the procedure of building IoT with Raspberri Pi.	[7]

UNIT - III

5	a)	Explain the concept of Communication Protocol of MQTT along with diagram.	[7]
	b)	Which protocol is used to link all the devices in IoT? Explain in detail.	[7]
		(OR)	
6	a)	Draw the protocol architecture of TCP and explain function of each layer in detail.	[7]
	b)	Write short notes on Bluetooth Key Versions in detail.	[7]

UNIT - IV

7	a)	What is Device integration? Explain the Device integration in IoT along with one example.	[14]
		(OR)	
8	a)	Explain the usage of cloud platforms for IoT applications and services.	[7]
	b)	Discuss data acquiring and storage in IoT?	[7]

UNIT - V

9	a)	Design process specification and domain for home intrusion detection system using IoT design methodology.	[7]
	b)	Explain the implementation of IoT technology in smart parking.	[7]
		(OR)	
10	a)	Explain the implementation of Heart Monitors with Reporting in IoT?	[7]
	b)	Define how the IoT technology can be implemented in intrusion detection system.	[7]

Code No: **R204104Q** **R20** **Set No. 3**

IV B.Tech I Semester Regular Examinations, January – 2024

IOT AND APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
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UNIT - I

1	a)	Draw and explain the IoT software components for device hardware.	[7]
	b)	Explain the concept of Security aspects in IoT in detail.	[7]
		(OR)	
2	a)	Explain the importance of Role of Cloud in IoT in detail.	[7]
	b)	Write short notes on Popular IoT Development Boards in detail.	[7]

UNIT - II

3	a)	List out different Cortex-M0 Processor Instruction Set and explain.	[7]
	b)	What are the things need to be considered for developing on the Raspberri Pi?	[7]
		(OR)	
4	a)	Give an overview of ARM Cortex-M Processor family.	[7]
	b)	List out different futures of Arduino in detail.	[7]

UNIT - III

5	a)	Explain the operation of Bluetooth Low Energy (BLE) Protocol along with diagram.	[7]
	b)	Why the python is the first choice for the Raspberry Pi language than C or C++?	[7]
		(OR)	
6		Explain the following terms in detail i) ZigBee ii) CoAP	[14]

UNIT - IV

7	a)	What do you mean by data storage? Explain different methods in IoT?	[7]
	b)	List out different authorization of devices in IoT along with examples.	[7]
		(OR)	
8		Explain the concept of how unstructured data storage on cloud/local server along with one example?	[14]

UNIT - V

9	a)	Explain the different challenges integration on IoT in cloud.	[7]
	b)	Write short notes next evolution of cloud computing.	[7]
		(OR)	
10	a)	Implement the smart irrigation system.	[7]
	b)	Discuss about case study on IoT system for industrial automation.	[7]

Code No: **R204104Q** **R20** **Set No. 4**

IV B.Tech I Semester Regular Examinations, January – 2024

IOT AND APPLICATIONS

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
*****

UNIT - I

1	a)	What is internet of things? Describe the characteristics of IoT.	[7]
	b)	Explain in detail about XaaS (Everything as a Service).	[7]
		(OR)	
2	a)	With the help of neat diagram, describe the levels of IoT with an example.	[7]
	b)	Mention the applications of IoT and Business processes in IoT.	[7]

UNIT - II

3	a)	List out different hardware components used in Raspberry Pi and explain.	[7]
	b)	Give an overview of ARM Cortex-M Processor family.	[7]
		(OR)	
4	a)	Explain Cortex-M0 Processor Instruction Set along with examples.	[7]
	b)	List out few comparisons of Arduino and ARM processor.	[7]

UNIT - III

5	a)	Draw the PSoC4 BLE architecture and explain its operation in detail.	[7]
	b)	What are the advantages and disadvantages of Bluetooth?	[7]
		(OR)	
6	a)	Explain the constraint application protocol (CoAP) in detail.	[7]
	b)	Write a short note on: MQTT and Zig-Bee.	[7]

UNIT - IV

7	a)	Write key points about unstructured data storage on cloud.	[7]
	b)	Differentiate Device Integration and Data Integration.	[7]
		(OR)	
8	a)	What is Authentication? Explain its importance in IoT applications.	[7]
	b)	Write short notes on Device data storage in IoT?	[7]

UNIT - V

9	a)	Explain about Role of cloud computing in IoT.	[7]
	b)	Write any seven differences between cloud computing and Fog computing.	[7]
		(OR)	
10	a)	Explain the implementation of IoT technology in Structural health monitoring.	[7]
	b)	List out different IoT devices used in Banking sectors in detail.	[7]