**Q. Code:804430**

**Reg. No.** | | | | | | | | | | | | | |

**B.E. / B.TECH. DEGREE**

**EXAMINATIONS, MAY 2024**

Seventh Semester

**CS18009 – INTERNET OF THINGS AND ITS APPLICATIONS**

*(Computer Science and Engineering)*

**(Regulation 2018/2018A)**

**TIME: 3 HOURS** **MAX. MARKS: 100**

| COURSE OUTCOMES | STATEMENT | RBT LEVEL |
|---|---|---|
| **CO 1** | Students will be able to understand the vision of IoT | **2** |
| **CO 2** | Students will be exemplifying the application of IoT in various domains. | **3** |
| **CO 3** | Students will be able to understand the differences and similarities between IoT and M2M. | **3** |
| **CO 4** | Students will be able to interpret the different IoT platforms design methodology. | **3** |
| **CO 5** | Students will be illustrating various IoT physical devices. | **4** |

**PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

| | | CO | RBT LEVEL |
|---|---|---|---|
| **1.** | Define IoT and list two of its characteristics. | **1** | **2** |
| **2.** | Outline the key components of IoT communication models. | **1** | **2** |
| **3.** | Give the benefits of implementing IoT in agriculture. | **2** | **2** |
| **4.** | Give two examples of IoT applications in the environment sector. | **2** | **2** |
| **5.** | Differentiate between IoT and M2M. | **3** | **3** |
| **6.** | Define the significance of M2M communication in IoT. | **3** | **2** |

| | | | | |
|---|---|---|---|---|
| **7.** | What is the purpose of requirements specification in IoT platform design? | **4** | **2** | |
| **8.** | Define IoT level specification. | **4** | **2** | |
| **9.** | Enlist the basic building blocks of an IoT device? | **5** | **3** | |
| **10.** | Name two interfaces commonly used in Raspberry Pi for IoT projects. | **5** | **3** | |

**PART- B (5 x 14 = 70 Marks)**

| | | Marks | CO | RBT LEVEL |
|---|---|---|---|---|
| **11. (a)** | Explain the generic block diagram of IoT device and its components | **(14)** | **1** | **2** |
| | **(OR)** | | | |
| **(b)** | Explain the various IoT levels and deployment models. | **(14)** | **1** | **2** |
| **12. (a)** | Explain the applications for IoT in places in cities like<br>i. Smart Parking<br>ii. Smart Roads<br>iii. Surveillance<br>iv. Emergency response. | **(14)** | **2** | **2** |
| | **(OR)** | | | |
| **(b)** | Explain the applications for IoT for Logistics like<br>i. Route Generation and Scheduling<br>ii. Fleet Tracking<br>iii. Shipment Monitoring<br>iv. Remote Village Diagnostics | **(14)** | **2** | **2** |

| | | | | |
|---|---|---|---|---|
| **13. (a)** | Bring out the application layer, control layer, and infrastructure layer in Software-defined Networking Architecture and explain in detail. | **(14)** | **3** | **3** |
| | **(OR)** | | | |
| **(b)** | Illustrate the Home network with a virtualized home gateway using Network function virtualization. | **(14)** | **3** | **3** |
| **14. (a)** | List the various steps involved in IoT system design methodology and develop a process specification diagram for the home automation system. | **(14)** | **4** | **3** |
| | **(OR)** | | | |
| **(b)** | Illustrate the functional view specification for the Home automation IoT system (mode and state service). | **(14)** | **4** | **3** |
| **15. (a)** | Analyse the various steps for interfacing an LED, Switch, and Light Sensor with Raspberry Pi. | **(14)** | **5** | **4** |
| | **(OR)** | | | |
| **(b)** | Analyse the significance of various components in raspberry Pi Board. | **(14)** | **5** | **4** |

**PART- C (1 x 10 = 10 Marks)**

(Q.No.16 is compulsory)

| | | Marks | CO | RBT LEVEL |
|---|---|---|---|---|
| **16.** | Develop a comprehensive IoT-based solution aimed at improving patient monitoring and healthcare delivery within a hospital setting, outlining the key components, communication protocols, and data analytics methods utilized to ensure efficient and effective healthcare management. | **(10)** | **2** | **5** |

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