**KUMARAGURU**
college of technology
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**B.E DEGREE EXAMINATIONS: NOV/DEC 2024**

(Regulation 2018)

Sixth Semester

**INFORMATION SCIENCE AND ENGINEERING**

U18ISE0005**:** IOT Architecture and Protocols

**COURSE OUTCOMES**

**CO1:** Appreciate the evolution and applications of IoT.

**CO2:** Evaluate the available sensors for an application and understand circuits.

**CO3:** Analyze different options for Embedded systems and understand the concept ofMGC Architecture.

**CO4:** Analyze different connectivity and network protocol option and choose the appropriate one for a given application.

**CO5:** Deploy IoT devices that are integrated with services such as IoT Core, IoT Device Management and IoT Analytics.

**Time: Three Hours**                                           **Maximum Marks: 100**

**Answer all the Questions: -**
**PART A (10 x 2 = 20 Marks)**
**(Answer not more than 40 words)**

| # | Question | CO | K |
|---|----------|-----|-----|
| 1. | Define IoT. Why is it important? | CO1 | [$K_1$] |
| 2. | List the benefits of Baby monitoring system. | CO1 | [$K_1$] |
| 3. | State the challenges of senor energy management. | CO2 | [$K_2$] |
| 4. | Distinguish Digital and Analog circuits. | CO2 | [$K_2$] |
| 5. | Summarize Software Connectivity in Embedded systems. | CO3 | [$K_2$] |
| 6. | Embedded Systems don't require much power to operate- Justify. | CO3 | [$K_2$] |
| 7. | Construct an Energy harvesting transmitter with neat sketch. | CO4 | [$K_2$] |
| 8. | Compare Computation and Communication. | CO4 | [$K_2$] |
| 9. | Recall the AWS Deeplens. | CO5 | [$K_1$] |
| 10. | How is security implemented between our IoT devices and AWS cloud? | CO5 | [$K_1$] |

**Answer any FIVE Questions: -**
**PART B (5 x 16 = 80 Marks)**
**(Answer not more than 400 words)**

| # | | Question | Marks | CO | K |
|---|---|----------|-------|-----|-----|
| 11. | a) | Explain the IoT based smart waste management system for smart city. | 8 | CO1 | [$K_2$] |

| | | | | | |
|---|---|---|---|---|---|
| b) | Identify the role of IoT in the Disease Treatment and Progression Monitoring system. | 8 | CO1 | [K$_2$] |

12.     Identify the criteria to choose the right sensor for any Industrial applications and justify the sensor selection.     16   CO2   [K$_3$]

13. a)   Demonstrate the connection between Embedded devices and IoT.     8   CO3   [K$_2$]

    b)   Illustrate the Gateway and Cloud Architecture for smart parking system and explain the Information exchange between device to cloud.     8   CO3   [K$_2$]

14. a)   Discuss the Connectivity Challenges in IoT.     8   CO4   [K$_2$]

    b)   Outline the Massive Multiple Access in IoT Networking     8   CO4   [K$_2$]

15.     Construct the weather monitoring system using appropriate sensors and mention the implementation steps with AWS IoT core and MQTT.     16   CO5   [K$_3$]

16. a)   Demonstrate IoT based Smart Agriculture Monitoring system.     8   CO1   [K$_2$]

    b)   Summarize the use of IoT Device Shadow AWS.     8   CO5   [K$_2$]

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