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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
 [AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 50039

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. 2025

Sixth Semester

Computer Science and Engineering
 U19CS627 - INTERNET OF THINGS

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

| | | | |
|------------------|--------------------|----------------|-----------------|
| Knowledge Levels | K1 – Remembering | K3 – Applying | K5 - Evaluating |
| (KL) | K2 – Understanding | K4 – Analyzing | K6 - Creating |

PART – A

(10 x 2 = 20 Marks)

| Q.No. | Questions | Marks | KL | CO |
|-------|--|-------|----|-----|
| 1. | Differentiate between Logical and physical design of IoT. | 2 | K3 | CO1 |
| 2. | List two desirable characteristics of REST full API with respect to IOT. | 2 | K1 | CO1 |
| 3. | What is the role of Broker in MQTT? Typically, where do we deploy the broker function in constrained IOT Networks? | 2 | K2 | CO2 |
| 4. | State the challenges of OGC architecture model. | 2 | K1 | CO2 |
| 5. | Distinguish between IEEE 802.15 and IEEE802.11. | 2 | K3 | CO3 |
| 6. | How is IOT node Registration related to Discovery? | 2 | K2 | CO3 |
| 7. | Name two GPIO port on Raspberry Pi that offers Synchronous communication. | 2 | K2 | CO4 |
| 8. | What is the difference between library framework and API? Give a suitable example. | 2 | K2 | CO4 |
| 9. | List out the various technical constraints in building the IoT Applications. | 2 | K2 | CO5 |
| 10. | What is the relationship among URI, URN & URL? | 2 | K2 | CO5 |

PART – B

(5 x 13 = 65 Marks)

| Q.No. | Questions | Marks | KL | CO |
|-------|--|-------|----|-----|
| 11. | a) Explain the potential and benefits of an IoT oriented approach over M2M by considering Health band as the real world use case example. Compare the main characteristics of M2M and IoT. | 13 | K2 | CO1 |
| | (OR) | | | |
| | b) i. Differentiate between physical and logical design of IoT. | 5 | K2 | CO1 |
| | ii. Explain the IoT System Management with NETCONF - YANG and its applications. | 8 | K2 | CO1 |
| 12. | a) Demonstrate the M2M high level ETSI architecture with neat diagram to facilitate access to any of the vertical protocols. | 13 | K3 | CO2 |
| | (OR) | | | |
| | b) i. Discuss IETF Working Groups and Specifications Scope. | 6 | K2 | CO2 |
| | ii. Explain OGC functional architecture and interactions with a neat diagram. | 7 | K3 | CO2 |
| 13. | a) i. Describe the BACNet protocol in IOT and its advantages over other protocols. | 7 | K2 | CO3 |
| | ii. Discuss the role of Unified Data Standards in IoT Standardization. | 6 | K2 | CO3 |
| | (OR) | | | |
| | b) Compare COAP with MQTT on the following areas: Connectivity options and scalability. | 13 | K3 | CO3 |
| 14. | a) Explain the basic building blocks of IoT and its functions in detail. | 13 | K2 | CO4 |
| | (OR) | | | |
| | b) i. Discuss about the Raspberry Pi Interfaces in detail. | 5 | K2 | CO4 |
| | ii. Explain various Python Packages available for implementing IoT projects. | 8 | K2 | CO4 |
| 15. | a) i. Analyze about the various technical design constraints of non-functional requirements. | 7 | K2 | CO5 |
| | ii. Identify the needs of security Governance in IoT. | 6 | K2 | CO5 |
| | (OR) | | | |
| | b) Demonstrate in detail about the construction of vehicle charging application in IOT. | 13 | K3 | CO5 |

PART – C

(1 x 15 = 15 Marks)

| Q.No. | Questions | Marks | KL | CO |
|--------|---|-------|----|-----|
| 16. a) | Finding parking in urban areas, whether public or private, is an everyday problem. How an IoT solution can contribute to smart detection of parking spots availability in smartcities. Apply IoT design methodology step wise for smart parking system. | 15 | K4 | CO5 |
| | (OR) | | | |
| b) | Illustrate the home automation using Raspberry Pi along its requirements, specifications, and integration. | 15 | K3 | CO3 |
