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ANNA UNIVERSITY :: CHENNAI APRIL/MAY 2025
B.E(FT) END SEMESTER EXAMINATIONS –

Computer Science and Engineering
Sixth/Eighth Semester
CS6014 & Internet of Things and Smart Appliances
(Regulation 2018 - RUSA)

Time:3 Hours Max.Marks: 100

	Answer All Questions **PART - A (10 x 2 = 20 Marks)**
1.	Differentiate Operational Technology Vs Information Technology.
2.	How sensors and actuators interact?
3.	What are the different frames used in MAC layer of IEEE 802.15.4 ?
4.	Differentiate constrained networks with IP networks.
5.	What is the role of IoT Databroker?
6.	Define CoAP URI format.
7.	What are the four types of data analytics?
8.	What are the functions of data node & name node in Hadoop system?
9.	List the features of IBM Watson IoT platform?
10.	List the IoT usecase examples for smart campus.

PART – B (8 x 8 = 64 marks)

(Answer any 8 questions)

11.	Describe the IoT challenges. Also, Describe the main elements of oneM2M IoT architecture.
12.	Explain the working principle of Arduino with example IoT application.
13.	Tabulate the different sensor and actuators types with examples
14.	Explain the physical, MAC layer, topology and security features of LoRaWAN.
15.	Explain the RPL process DAG and DODAG graphs. Also, the metrics involved in RPL.

16.	Explain the tunneling process SCADA over IP networks using different scenarios.
17.	With appropriate machine learning algorithms, analyze user presence and behavior (smart lighting, thermostat, security system) to personalize home automation settings, like adjusting temperature, lighting, or music, based on individual preferences and routines.
18.	Demonstrate the CISCO IoT system with its security features.
19.	Compare the CoAP with MQTT. Also the QoS services offered by MQTT.
20.	Imagine you have a large dataset of user clickstream data from a website. The data is in a CSV file with columns for user ID, timestamp, page visited, and product ID. You need to identify the most popular product combinations (i.e., the pairs of products that users most frequently click together). How the data can be processed using Apache spark engine for edge analytics.
21.	Explain the key components of an IoT-based smart energy meter system, including the meter itself, communication networks, and data processing platforms.
22.	Explain the IoT World Forum standardized architecture.

PART–C (2x8=16marks)

23.	Describe the different use cases for implementing IoT solutions in smart city.
24.	Explain the CoAP protocol implementation using temperature sensor.