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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: 7009

B.E. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024

Sixth Semester

Electronics and Communication Engineering

U19ECV46 – IOT ENABLED SYSTEMS DESIGN

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

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

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List the features of IoT.	2	K2	CO1
2.	Outline the role of sensors in an IoT ecosystem.	2	K2	CO1
3.	Mention the interoperability challenges faced by different middleware architectures in IoT.	2	K4	CO2
4.	Compare the characteristics of Zigbee and BACnet protocols in the context of IoT.	2	K4	CO2
5.	What is the primary advantage of using IEEE 802.11ah for IoT applications compared to traditional Wi-Fi standards?	2	K4	CO3
6.	Recall the application layer protocols CoAP and MQTT, highlighting their differences.	2	K4	CO3
7.	Interpret the role of python in developing applications for IoT.	2	K2	CO4
8.	What are the practical applications of IoT with Raspberry Pi.	2	K4	CO4
9.	List applications and benefits of IoT in the logistics sector.	2	K2	CO5
10.	Infer the significance of IoT in agricultural sector.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	i. Analyze the core functional stack in IoT and its impact on building robust IoT ecosystems.	7	K2	CO1
	ii. Explain the concept of M2M communication and its significance in the Internet of Things (IoT).	6		
(OR)				
b)	Analyze the Fog, Edge, and Cloud components in IoT architecture and their respective contributions.	13	K4	CO1
12. a)	i. Evaluate the middleware architecture of SCADA and its applications in the IoT context.	8	K4	CO2
	ii. Discuss Horizontal Architecture Approach for IoT Systems.	5		
(OR)				
b)	i. Discuss the challenges introduced by 5G in IoT middleware, considering technological requirements and potential solutions.	8	K4	CO2
	ii. Discuss the Resource management in IoT.	5	K4	CO2
13. a)	i. Assess the security features of LoRaWAN and its suitability for various IoT applications.	7	K4	CO3
	ii. Discuss the security features of IEEE 802.15.4 and their relevance in IoT access technologies	6		
(OR)				
b)	i. Evaluate the IP versions and their optimization for IoT, specifically focusing on 6LoWPAN.	8	K4	CO3
	ii. Compare and contrast the physical and MAC layers of IEEE 802.15.4, 802.15.4g, and 802.15.4e in terms of their suitability for IoT applications.	5		
14. a)	Demonstrate the development of sensor-based applications using embedded system platforms.	13	K4	CO4
(OR)				
b)	Explain the various applications that can be developed through IoT tools, providing an example for illustration.	13	K4	CO4
15. a)	Explore and discuss the role of IoT in environmental monitoring, providing relevant case studies.	13	K2	CO5
(OR)				
b)	Explore the applications of IoT in the industry sector, highlighting its impact and potential case studies.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Choose a specific case study related to IoT implementation in a smart city and discuss its impact on various sectors.	15	K4	CO5
	(OR)			
b)	Choose a case study related to IoT implementation in the energy sector and discuss its challenges and strategic implications.	15	K4	CO2
