

Reg.No.: 

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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: 7035**

M.E. / M.Tech. DEGREE END-SEMESTER EXAMINATIONS – JUNE / JULY 2024

Second Semester

VLSI Design

P23VDE16 – INTERNET OF THINGS AND APPLICATIONS

(Regulation 2023)

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.	What is the role of controller service in IoT systems?	2	K1	CO1
2.	List few protocols used in M2M.	2	K1	CO1
3.	Recall the hierarchy of Fog, Edge, and Cloud.	2	K1	CO4
4.	Relate the criteria used to classify Actuators.	2	K2	CO4
5.	Infer the use of IEEE 1901.2a.	2	K2	CO2
6.	Define SCADA.	2	K1	CO2
7.	Name the Linux version on Raspberry Pi.	2	K1	CO3
8.	Match the need for microcontrollers in embedded systems.	2	K1	CO3
9.	Relate the use of blockchain services in the IBM Watson IoT platform.	2	K2	CO5
10.	Define connected manufacturing.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11.	a) List the two communication Apls of IoT. Explain them in detail.	13	K2	CO1
	(OR)			
	b) Analyze the challenges and requirements faced by the IoT systems, which paved the way to network architecture, and compare the best-known architecture supported by OneM2M and IoTWF.	13	K4	CO1
12.	a) Outline the different types of physical conditions to denote the various types of sensors and tabulate them.	13	K2	CO3
	(OR)			
	b) Demonstrate the simplified IoT architecture and Core IoT Functional Stack with a neat diagram.	13	K2	CO3
13.	a) What are the purposes of BACNet protocol and KNX? Explain in detail.	13	K2	CO2
	(OR)			
	b) Demonstrate routing over low power and lossy networks with a suitable explanation.	13	K2	CO2
14.	a) Summarize in detail about embedded computing. Explain the microcontroller and chips involved in embedded devices.	6 + 7	K2	CO4
	(OR)			
	b) Brief a methodology to obtain secured platforms for smart cities. Explain the process of data aggregation for the IoT in smart cities.	13	K2	CO4
15.	a) Illustrate the 11-tiered reference architecture of grid blocks and the use of the reference model.	13	K2	CO5
	(OR)			
	b) Analyze the grid block reference model and the reference architecture with suitable illustrations.	13	K4	CO5

**PART – C**

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Explain the importance of smart city in IoT applications.	15	K2	CO5
	(OR)			
b)	Explain the industrial application of an IoT system and provide a brief overview of the various use cases of intelligent and connected cities.	15	K2	CO5

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