24/12/24 (FN)

Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

Minor Degree
V Semester
ITM506 - IoT BASED SMART SYSTEMS
(Regulation2019)

Time:3hrs

Max.Marks: 100

CO1	Understand the evolution of the Internet and the impact of IoT on society.
CO2	Apply appropriate protocols in various parts of IoT based systems.
CO3	To design and build a small low-cost using Raspberry Pi and open-source platform.
CO4	To apply the concept of Internet of Things in the real-world scenario.
CO5	Use cloud offerings and big data tools in IoT based systems.
CO6	Design and Analyze applications of IoT in real time scenario

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	Define IoT and explain its physical and logical designs.	2		L2
2	What are IoT enabling technologies? Provide two examples	2		L1
3	What are the key differences between engineering and prototyping?	2		L2
4	List the core components of a simplified IoT architecture	2		L2
5	What are the building blocks of an IoT system using Raspberry Pi?	2		L1
6	Briefly describe the Arduino Rest APIs	2		L2
7	Express why LED technology is used in street lighting	2		L1
8	List two advantages of Zigbee for IoT applications.	2		L2
9	Explain the role of GSM modules in IoT	2		L1
10	What are the key challenges in real-time IoT data analysis?	2		L2

PART- B(5x 13=65Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Discuss the physical and logical design aspects of IoT systems, providing examples of each and compare the oneM2M and IoT World Forum (IoTWF) IoT architectures.	13		L2
	OR			
11 (b)	Describe a case study on smart healthcare using IoT technologies	13		L2
12 (a)	Design a simple Arduino project with two or more sensors and actuators, detailing the steps involved from conception through to development, including the use of the Arduino IDE	13		L3
	OR			
12 (b)	Explain the software development lifecycle for embedded systems in detail, highlighting how each phase contributes to the overall project success.	13		L3
13 (a)	Discuss the process of programming Raspberry Pi using Python	13		L2
	OR			
13 (b)	Explain the use of NodeMCU and its applications in IoT	13		L2
14 (a)	Explain the IoT communication models and their suitability for different applications.	13		L3

	OR			
14 (b)	Describe the role of SCADA and RFID protocols in IoT.	13		L3
15 (a)	Outline the development of IoT applications for smart cities	13		L4
	OR			
15 (b)	Discuss the role of data analytics in IoT with an example from smart agriculture.	13		L4

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Design an IoT-based healthcare monitoring system. Discuss its components, data flow, and analytics usage to improve patient care	15		L6