RollNo. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

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

BTech IT Minor degree
VI Semester
ITM506 – IOT BASED SMART SYSTEMS

(Regulation 2019)

Time:3hrs Max.Marks: 100

CO1	Understand the evolution of 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 cast using RasberyPI and open source platform
CO4	To apply the concept of IoT in real world scenarios
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	Draw a generic block diagram of an IOT system	2	CO1	L1
2	Compare IOT and M2M technologies	2	CO1	L2
3	Differentiate IOT and Embedded system	2	CO1	L2
4	Write a sketch to read temperature data from pin 5 of Arduino board and display it	2	CO3	L3
5	Write a python code to make LED connected at GPIO pin 5 of Raspberry PI to blink with five seconds interval	2	CO3	L3
6	When data to be stored in Cloud, from IOT sensor which microcontroller board will you prefer and why	2	CO5	L2
7	Discuss briefly about GPS-GSM module	2	CO4	L1
8	Name the technology used in Access card for office entry door. Justify your answer	2	CO6	L2
9	Discuss need for cleaning the data acquired by IOT sensor in data analytics	2	CO5	L2
10	List out four different tasks to be addressed for home automation system	2	CO4	L2

PART- B(5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No	Questions	Marks	CO	BL
11 (a)	(i) Discuss about different IOT levels. (ii) Explain in detail about IOT level 4 with one example	4 9	CO1 CO1	L2 L2
	OR			
11 (b)	(i) Discuss about different types of sensors and actuators. (ii) Discuss in detail about principles of operation of two sensor and two actuator	4 9	CO1 CO1	L2 L2
12 (a) (i)	Write an Arduino sketch program to switch ON Light and fan if a person entering in a room. Display the number of persons entering room continuously. If the person count is exceeding 10, Give an alert buzzer sound, and display "full-no more entry". Draw connection diagram accordingly. (pin numbers used for connection should be indicated in comments) Draw pin diagram of Arduino board	13	CO6	L3
	OR			
12 (b) (i)	Discuss about micro controller architecture with functional block diagram. Map that with Arduino board. Discuss about its features	13	CO3	L2
13 (a) (i)	Write a python program to switch ON lights of the room connected at pin 5 when light sensor (pin 6) senses brightness below threshold set by user. Also LED connected at pin 8 should glow when light is on. Draw connection diagram with pin details accordingly.	13	CO6	L3
	OR			
13 (b)	(i) Write a python program to print multiples of 10 ranging from 20 to 200 (ii) Discuss about RASBERRY PI board with pin diagram. Discuss its unique features compared with other micro controllers.	4 9	CO1 CO3	L3 L3
14 (a) (i)	Discuss briefly about different devices in zigbee network and explain different topologies adopted in zigbee networking. Mention one suitable place for zigbee network and explain how its operation	13	CO4	L3
	OR			
14 (b) (i)	Discuss in detail about different communication models used for IOT communication with examples.	13	CO2	L3

15 (a) (i)	Discuss the use of data analytics in weather forecasting using IOT sensors with block diagram	**13**	CO6 CO5	L3
	OR			
15 (b) (i)	Discuss functional view specification in IOT design and working of it with street light automation	**13**	CO6	L3

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16.	Design an IOT based forest fire detection system which should inform alert to forest office, fire station, police station through messages during fire. Find suitable IOT level and design using suitable IOT devices and components (justify them). Draw architecture diagram, write pseudo code for implementation of the system. Explain in detail all operations.	**15**	CO1 CO2 CO3 CO4 CO5 CO6	L6