Total number of printed pages: **2** **Programme(D/UG/PG)/Semester/UIE816**

2024

INTERNET OF THINGS

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	Write the definition of IoT. Describe any three properties of IoT.	2+3
	b)	Discuss the meaning of data, information and knowledge with respect to an IoT system.	5
	c)	Draw the functional block diagram of IoT logical design.	5
	d)	Determine the IoT levels for designing IoT systems smart irrigation system and explain.	5
2.	a)	Define and describe the communication with REST APIs. What are the architectural constraints of REST?	2+3
	b)	List the IoT protocols according to the communication layers.	5
	c)	Write the difference between REST and WebSocket communication model.	5
	d)	Draw the physical block diagram of the IoT system.	5
3.	a)	Write a detail list of applications areas of IoT system.	6
	b)	Describe an example of IoT service that uses publish - subscribe communication model.	5
	c)	What is Software Defined Networking (SDN)? Briefly discuss the SDN architecture and layers.	2+7
4.	a)	Write the differences between M2M and IoT.	4
	b)	Discuss the six type of IoT levels and deployment templates.	6×2
	c)	Map the deployment level to functional groups for home automation IoT system.	4

5. a) Write the python code for the following (any two). 5×2

i) Find the sum of the geometric series $1 + x + x^2 + x^3 + \cdots + x^n$ given the values of x and n.

ii) Find prime numbers from 3 to 100 using the 'for' loop.

iii) Print Fibonacci sequence using a 'while' loop.

b) Write an application of python module. 5

c) Define package in Python language with an application. 5

6. a) Define an IoT device. Draw the basic building blocks of an IoT device and discuss. 2+5

b) How is Raspberry Pi different from a desktop computer 3

c) Describe in detail about any one IoT device 10

i) Raspberry Pi Board

ii) Arduino Board

iii) ESP 32 Board

7. a) Enlist the ten steps involve for designing an IoT system. 10

b) Write short notes on the following (any two). 5×2

i) Role of Things and Internet in IoT

ii) IoT enabling technologies

iii) IoT level 5 deployment templates