



R22 Regulation *Subject code:4E5FB*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Regular/Supplementary Examinations, November 2025
FUNDAMENTALS OF IOT

(IT)

Maximum Marks: 60

Date: 22.11.2025

Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	Define the Internet of Things (IoT).	1M	1	1
b)	List any two characteristics of IoT.	1M	1	1
c)	What is interoperability in IoT?	1M	2	2
d)	Mention one difference between IoT and M2M.	1M	2	1
e)	What is Python programming?	1M	3	1
f)	Name any two peripherals that can be interfaced with Raspberry Pi.	1M	3	1
g)	What is Software-Defined Networking (SDN)?	1M	4	1
h)	What is the role of Raspberry Pi in IoT implementation?	1M	4	1
i)	What are Smart Cities?	1M	5	2
j)	Mention any two applications of IoT in Healthcare.	1M	5	2

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	a) Explain the concept of the Internet of Things (IoT) with suitable examples.	5M	1	2
	b) Discuss in detail the key characteristics and features of IoT systems.	5M	1	2
OR				
3	a) Describe the physical design of IoT and its essential components.	5M	1	3
	b) Explain the functional blocks of IoT architecture with a neat diagram.	5M	1	3
4	a) Explain the concept of Machine-to-Machine (M2M) communication with suitable examples.	5M	2	2
	b) Discuss the importance of interoperability in IoT systems.	5M	2	3
OR				
5	a) Explain the basic structure and syntax of Arduino programming with an example.	5M	2	3
	b) Illustrate a simple IoT project using Arduino, explaining the role of sensors and actuators.	5M	2	3

6	a) Explain the features of Python programming that make it suitable for IoT applications.	5M	3	2
	b) Discuss the process of interfacing Raspberry Pi for blinking LED.	5M	3	3
OR				
7	a) Write a simple Python program to read sensor data using Raspberry Pi.	5M	3	3
	b) Discuss any one real-time case study where Raspberry Pi was used in IoT implementation.	5M	3	3
8	a) Mention the implementation steps of Map reduce algorithm with an example.	5M	4	3
	b) Discuss the benefits and challenges of using SDN for IoT environments.	5M	4	3
OR				
9	a) Write short notes on the role of data handling in IoT systems.	5M	4	2
	b) Write about IoT in data analytics.	5M	4	3
10	a) Describe the concept and architecture of Sensor-Cloud systems.	5M	5	3
	b) Explain how IoT enables Connected Vehicles and their communication systems.	5M	5	3
OR				
11	a) What is Industrial IoT (IIoT)? Discuss its key components and applications.	5M	5	2
	b) Evaluate the role of IoT in Healthcare with suitable case studies.	5M	5	3