R22 Regulation *Subject code:4E5FB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, April 2026

FUNDAMENTALS OF IOT

(IT)

Maximum Marks: 60 Date:20.04.2026 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	BTL
1.a)	What is meant by an actuator in IoT?	1M	1	2
b)	What is the role of sensors in IoT systems?	1M	1	2
c)	Define Machine-to-Machine (M2M) communication.	1M	2	1
d)	What is Arduino used for in IoT applications?	1M	2	2
e)	What is Raspberry Pi?	1M	3	1
f)	Mention ant two real-time IoT applications developed using Raspberry Pi.	1M	3	2
g)	Define data analytics in the context of IoT.	1M	4	1
h)	Mention any one advantage of using SDN in IoT networks.	1M	4	2
i)	What is an IoT cloud?	1M	5	1
j)	What are the different types of cloud storage?	1M	5	1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Illustrate the physical design of the IOT with neat diagram.	10M	1	2
	OR			
3	a) Explain various communication protocols used in IoT systems. b) What are sensor networks? Discuss their role and importance in IoT.	5M 5M	1 1	3 3
4	a) Compare and contrast IoT and M2M communication in terms of architecture and applications. b) Describe the architecture and working of an Arduino board.	5M 5M	2 2	3 2
	OR			
5	Describe how sensors and actuators can be interfaced with Arduino for IoT applications.	10M	2	3
6	a) Describe the architecture and components of Raspberry Pi. b) Explain step-by-step how to set up a Raspberry Pi for IoT implementation.	5M 5M	3 3	2 3
	OR			

7	a) Compare Raspberry Pi with Arduino in terms of functionality and IoT usage. b) Illustrate how Python and Raspberry Pi together support IoT-based automation systems.	5M 5M	3 3	3 3
8	a) Describe the architecture and working principle of Software-Defined Networking (SDN). b) Explain the integration of SDN and IoT for efficient network management.	5M 5M	4 4	2 3
	OR			
9	a) Describe how IoT data analytics helps in decision-making. b) Explain the importance of SDN-based IoT architecture in managing large-scale IoT systems.	5M 5M	4 4	3 3
10	a) Explain the role of Cloud Computing in IoT applications. b) Discuss the applications of IoT in Smart Cities and Smart Homes.	5M 5M	5 5	2 3
	OR			
11	a) Describe the architecture and benefits of Smart Grids using IoT. b) Analyze the use of IoT in Agriculture and explain how it improves productivity.	5M 5M	5 5	3 3