K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

JAN – FEB 2026

PhD Program: Academic Year 2025-26

Course Work Examination

Course Code: **PhD102** and Course Name: Introduction to Internet of Things

Date: 21-01-2026 Duration: 2.00 PM to 4.30 PM Max. Marks: 70

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.
(Add/remove the instructions)

	Question	Max. Marks	CO	BT Level
Qu-1	Solve any **THREE** questions out of **FOUR.**	**15**		
i)	Explain the evolution and key characteristics of the Internet of Things (IoT).	5	CO1	2
ii)	Discuss the challenges and design issues in wireless sensor networks for IoT	5	CO2	2
iii)	Explain Arduino architecture and demonstrate how sensors and actuators are integrated in an IoT system using Arduino.	5	CO3	3
iv)	Explain the layered architecture of IoT with functions of each layer.	5	CO4	2
Qu-2	Solve any **THREE** questions out of **FOUR.**	**15**		
i)	Explain IoT communication protocols and compare MQTT and CoAP.	5	CO2	3
ii)	Describe the role of sensing and actuation in IoT systems with a suitable example.	5	CO1	2
iii)	Compare Arduino and Raspberry Pi platforms for IoT applications with suitable examples.	5	CO3	3
iv)	Explain Software Defined Networking (SDN) architecture and discuss its role in IoT networks.	5	CO4	3
Qu-2	Solve any **TWO** questions out of **THREE.**	**20**		
i)	Compare traditional networking with IoT networking requirements.	10	CO1	2
ii)	Describe Raspberry Pi architecture and explain the steps involved in implementing an IoT application using Raspberry Pi and Python.	10	CO3	4
iii)	Explain Machine-to-Machine (M2M) communication with an IoT-based use case.	10	CO2	3
Qu-3	Solve any **TWO** questions out of **THREE.**	**20**		

i)	Describe interoperability in IoT and discuss its importance in large-scale deployments	10	CO2	4
ii)	Describe Cloud Computing and Sensor-Cloud architecture in IoT data handling and analytics.	10	CO4	4
iii)	Explain Fog Computing and justify its importance in real-time IoT applications.	10	CO4	5

****