



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.												
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End - Term Examinations – May/June 2026

Date: 18-05-2026

Time: 01:00pm – 04:00pm

School: SOE	Program: B. Tech	
Course Code: ECE3023	Course Name: Wireless Sensor Networks & IoT	
Semester: VI	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05	C06
Marks	12	12	14	14	24	24

Instructions:

- Read all questions carefully and answer accordingly.
- Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Identify two areas of application for wireless sensor networks.	2 Marks	L1	C01
2.	Briefly elucidate the distinction between Wireless Sensor Networks (WSN) and ad-hoc networks.	2 Marks	L1	C02
3.	Give a brief explanation of the benefits of the frequency reuse concept in cellular networks.	2 Marks	L2	C03
4.	Illustrate the configuration of the Wireless Sensor Network (WSN) bus topology and briefly describe its functionality.	2 Marks	L2	C03
5.	Explain the concept of cyber-physical system in the context of the Internet of Things.	2 Marks	L2	C04
6.	What constitutes a sensor within an IoT system?	2 Marks	L2	C04
7.	Give a brief explanation of the IoT traffic flow LEACH routing protocol.	2 Marks	L2	C05
8.	Enumerate at least two distinctions between IIoT and IoT.	2 Marks	L3	C05
9.	Examine the differences between IT and OT from an IIoT perspective.	2 Marks	L3	C06
10.	Enumerate the benefits of industrial automation in contemporary factories and manufacturing facilities.	2 Marks	L3	C06

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Present an illustrated comparison between cellular and wireless ad-hoc networks, focusing on infrastructure, needed technologies, and applications.	10 Marks	L1	C01
	b.	Elucidate the CSMA/CD protocol within a bus network, accompanied by an appropriate diagram and sequential processes.	10 Marks	L1	C02
Or					
12.	a.	Detail the constraints and obstacles faced in constructing a stable Wireless Sensor Network in an urban warfare context.	10 Marks	L1	C01
	b.	Draw the architecture of a wireless sensor node using a clean block diagram, highlighting the ADC's requirements and potential uses.	10 Marks	L1	C02

13.	a.	Examine, via appropriate mathematical formulations, the diverse protocols employed for routing in wireless ad-hoc networks.	10 Marks	L2	C03
	b.	Describe the operation of the tree topology structure in a wireless sensor network using an appropriate diagram.	10 Marks	L2	C04
Or					
14.	a.	Illustrate the configuration of a mesh topology and examine the functionality of both full mesh and partial mesh arrangements. Provide two justifications, accompanied by explanations, for the predominance of mesh topology in Wireless Sensor Networks (WSNs).	10 Marks	L2	C03
	b.	Describe the architecture of a star topology network using an appropriate diagram. Describe the differences between the bus and star topological structures used in WSN.	10 Marks	L2	C04

15.	a.	What are the different types of sensors utilized in IoT technology? Provide a concise description and application of each item.	10 Marks	L3	C05
	b.	Outline the overarching architectural prerequisites of IoT within the ITU framework.	10 Marks	L3	C05
Or					

16.	a.	In the context of Internet of Things applications, give a thorough comparison of sensors, transducers, and actuators.	10 Marks	L3	C05
	b.	Elucidate the concept of Wireless Sensor Networks (WSN) within the Internet of Things (IoT), detailing diverse methodologies for building gateways between the internet and local networks.	10 Marks	L3	C05

17.	a.	Provide a suitable graphic to demonstrate how cyber-physical systems are used in industrial Internet of things applications.	10 Marks	L3	C06
	b.	What are interconnected factories? Briefly elucidate the impact of networked factories on future industries.	10 Marks	L3	C06
Or					
18.	a.	Elucidate the notion of future factories. What are the essential components required for the implementation of future factories?	10 Marks	L3	C06
	b.	Provide a brief overview of the Industry 4.0 approaches that must be used for the IIoT.	10 Marks	L3	C06