VIT
Vellore Institute of Technology

REG.NO.: 0134

SLOT: F2 + TF2

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

Programme Name & Branch	**: B.Tech - CSE**
Course Code and Course Name	**: BCSE315L – Wearable Computing**
Faculty Name(s)	**: Dr. S. Jafar Ali Ibrahim, and Dr. M. Gunasekar**
Class Number(s)	**: VL2025260102402 VL2025260102403**
Date of Examination	**: 22 – Aug – 2025**
Exam Duration	**: 90 minutes**

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Course Outcomes:

1. **CO1**: Explain the fundamental concepts and history of wearable components and IoT.
2. **CO2**: Demonstrate knowledge of building blocks for wearable computing including BLE, sensors, and APIs.

Q. No	Question	M	CO	BL
1	A health-tech start-up plans to launch a wearable wristband for elderly patients that can monitor heart rate, track daily activity, and send emergency alerts to caregivers. As the lead IoT systems engineer, use Human–Computer Interface (HCI) principles to ensure ease of use for elderly users. Describe how you would design this system by applying: a. Mass Market Enabler concepts – to make the product affordable and scalable. b. Multi-Device World principles – to ensure seamless integration with smartphones, tablets, and healthcare platforms. Explain how each principle will be integrated into the design to improve adoption, usability of market success.	10	CO1	4
2	Differentiate between Human-Computer Interface and Human-Computer Relationship in the context of wearables with the key features.	10	CO1	2
3	Your team has been tasked with creating a low-power wearable for athletes to track hydration levels during long-distance marathons. Describe how Bluetooth Low Energy (BLE) and suitable sensors can be integrated, considering battery constraints and real-time data accuracy.	10	CO1	1
4 a)	List and explain at least five types of sensors used in wearables. Explain the working principle with the sample applications	5	CO1	2
4 b)	Discuss the Android Wear API components: DataItem, DataMapItem, and DataMap. Explain how these APIs facilitate communication between devices.	5	CO1	1
5 a)	Draw and explain a typical m-Health system architecture, highlighting its key components and their functions.	5	CO2	3
5 b)	Suggest techniques to optimize power usage in body sensor network. Analyse the power consumption of the devices that are connected to it.	5	CO2	4

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