



VIT
Vellore Institute of Technology

Final Assessment Test – November 2025

Course: BCSE315L - Wearable Computing

Class NBR(s): 2399/2400

Time: Three Hours

Slot: F1+TF1

Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

COs	CO Statements
CO1	Learn about software, hardware tools, protocols and components required for Wearable Computing.
CO2	Understand basics of Body Sensor Networks (BSN) and its Programming Framework.
CO3	Gain Knowledge about Cloud assisted BSN.
CO4	Learn About the necessary tools required for BSN applications.

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Answer ALL Questions

(10 X 10 = 100 Marks)

- 1.a) Explain any two important paradigms in modern Human-Computer Interaction (HCI) design with a scenario, giving the importance/focus leading to wearable computing. CO1 BL1

OR

- 1.b) Based on the capabilities of the Iron Man and Batman costumes, describe in detail a minimum of five specific wearable computing gadgets or features you would propose for both the Urban First Responder Suit and the Medical Staff System. For each proposed feature, clearly state whether it is inspired by Iron Man, Batman, or a combination of both, and briefly explain its function and practical application in the specified scenario with a suitable diagram. CO1 BL1

- 2.a) Write short notes on any five inter-device communication methods used in HCI systems, highlighting their features, applications and tabulate their advantages and disadvantages. CO2 BL3

OR

- 2.b) Identify any five types of wearable biosensors, for each identified biosensor. State what are the body chemical parameters to be measured and also mention the location in the body, where the sensors can be placed. CO2 BL3

3. A research team is developing a smart health monitoring system that uses multiple wearable sensors to continuously track a person's body activity and vital signs. The sensors are placed on wrist, waist, chest, head, thigh, and ankle — to collect physiological and data related to physical movements. Identify suitable sensor type for each of the body location mentioned. Explain the purpose and function of each sensor in the context of health or physical activity monitoring. CO2 BL
4. What are the 7 common tasks of Wireless Body Sensor Network (BSN) nodes and describe the purpose of each with an example. CO2 BL3
5. Explain each module of SPINE 2 node-side middleware framework software architecture with neat diagram. CO4 BL1
6. Describe the main components of the Mobile Agent Platform for Sun SPOT (MAPS) and its requirements with a neat architecture diagram. CO4 BL1
7. Explain in detail about the BSN/Cloud Computing Integration Challenges. CO3 BL1
8. Discuss the following four BSN community applications supported by BodyCloud, with a diagram that may interconnect the various service and interface. CO3 BL3
 - A) ECGaaS [2.5]
 - B) FEARaaS [2.5]
 - C) REHABaaS [2.5]
 - D) ACTIVITYaaS [2.5]
9. Explain the SPINE-Based Body Sensor Network Application of Handshake Detection. CO4 BL2
10. How to Run a Simple Application Using SPINE 2. Discuss with flow diagram. CO4 BL5

A/L/TY