

Reg. No.: Name

: 21BPS1364

VIT[®]Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Continuous Assessment Test-1 – MAY 2023

Programme	: B.Tech (CSE and its Specialization)	Semester	: Fall Inter Sem 2022-23
Course	: Internet of Things	Code	: BECE351E
Faculty	: Dr. Saraswathi D Dr. Manjula V Dr. Edward Jero Dr. Noel Jeygar Robert V	Slot(s)	: TF2
		Class Nbr(s)	: CH2022232501036 CH2022232501035 CH2022232501034 CH2022232501037
Time	: 1½ Hours	Max. Marks	: 50

Answer **ALL** Questions

1.	Draw the architecture of the Internet of Things and provide a detailed explanation of the key components. Then, highlight the differences between embedded systems, wireless sensor networks, and the IoT. Discuss how each technology contributes to the overall functionality and connectivity in the context of a smart home application. [10]
2.	Design the architecture for the two IoT enablers, communication protocols, and cloud services, in the context of a smart energy management solution for residential buildings. Explain the role of each enabler and how they contribute to the overall functionality of the system. Provide a detailed explanation of the architecture, including the communication protocols utilized and the integration of cloud services. [10]
3.	Design an IoT domain model for a weather monitoring station, incorporating three different weather monitoring sensors. Explain the role of each sensor and how the domain model facilitates the collection and analysis of weather data. Provide neat sketches to illustrate its architecture and data flow within the system. Additionally, discuss the potential applications and benefits of the weather monitoring station in various industries such as agriculture, aviation, and meteorology. [10]
4.	Design a function model for the IoT architecture reference model in the context of a smart transportation solution. Describe the key functions and components involved in the model. Illustrate how these functions interact and enable the efficient operation of the smart transportation system. Provide neat sketches to visualize the function model, the flow of data and information within the system. [10]
5.	Discuss one specific link layer protocol that can be used in the remote patient monitoring system scenario. Explain how the protocol enables reliable and efficient communication between the wearable devices and the central monitoring station. Provide a detailed explanation of the protocol's operation, including its key features and mechanisms. Additionally, provide neat sketches to illustrate the data flow and communication process between the wearable devices and the central monitoring station using the chosen link layer protocol. [10]