

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E.

Branch: Electronics and Communication Engineering

Course Code: 19EC6PE3IT

Course: Internet of Things

Semester: VI

Duration: 3 hrs.

Max Marks: 100

Date: 21.09.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

- 1 a) Compare the Operational Technology and Information Technology networks and their various challenges. **07**
- b) With a neat diagram explain the IoTWF standardized architecture. **08**
- c) Differentiate IoT and Digitization **05**

UNIT - II

- 2 a) Compare LoRaWAN, Sigfox, Ingenu Onramp which are the competitors under unlicensed LPWA Technology **10**
- b) Define Sensors. Classify and describe the sensors based on its applications giving some examples **10**

UNIT - III

- 3 a) What is SCADA? How do you adapt SCADA for IP? Sketch its protocol stack for transporting protocols over IP. **10**
- b) Compare the IoT Protocol Stack Utilizing 6LoWPAN and IP Protocol Stack. Illustrate the Optimizing IP for IoT using an adaptation layer. **10**

OR

- 4 a) Assume different kinds of temperature data in varying formats are considered, Illustrate the role of IoT Data Broker in detail **10**
- b) Sketch the MQTT Message format and describe each field in detail **10**

UNIT - IV

- 5 a) What is IoT data analytics? Describe its challenges. **06**
- b) With the help of a Massively Parallel Processing Database architecture, explain its operation and characteristics in detail **06**

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

- c) Explain the Lambda Architecture with the help of a block diagram. Mention its merits and demerits. **08**

OR

- 6 a) Compare Big Data and Edge Analytics **06**
b) Define OCTAVE and FAIR also mention their origin **06**
c) What is Apache Kafka? Illustrate the data flow from the smart objects (producers), through a topic in Kafka, to the real time processing engine. **08**

UNIT - V

- 7 a) Assume you are developing a smart city IoT infrastructure project. Since it's a layered architecture, propose, define and discuss the layers involved. **10**
b) Mention the features of Arduino UNO and Raspberi Pi **10**
