

May 2023

B.Tech. (EEIOT) VI SEMESTER**Microcontrollers and RFID for IOT (EE-IOT-601)**

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) What is a "Thing" in the context of Internet of Things (IoT)? (1.5)
- (b) Generate Memory & I/O control signals using any logic gate. (1.5)
- (c) What are different product identification methods. (1.5)
- (d) What are different types of frequency used in RF ID tags. (1.5)
- (e) Describe various types of timers in 8051 microcontroller. (1.5)

- (f) Define process, thread and task. (1.5)
- (g) How data send from micro controller to cloud in an IOT? (1.5)
- (h) Give the IE and IP register formats (1.5)
- (i) Which protocol is used to link all the devices in the IoT ? (1.5)
- (j) What are different modes of operation of ESP8266-01? (1.5)

PART-B

- 2. (a) Explain and compare ID and 2D bar codes. How does bar code works? (10)
- (b) What is GPS enabled active tags, describe its applications. (5)
- 3. (a) Explain the different jump instruction in 8051. (5)
- (b) What are RF ID tags, how they work? Describe working of active and passive types of RFID tags. (10)
- 4. Explain the architecture and different addressing modes in 8051 microcontroller. (15)
- 5. (a) What are the major Privacy and Security Issues in case of Internet of Things (IoT)? (5)
- (b) What is the ESP8266 Wi-Fi Module? Explain the circuit diagram and features. (10)

- 6. (a) Explain the working of Long range RFID. What are the applications of RFID in supply chain management, how the use of RFID improves the supply chain. (10)
 - (b) Describe the antenna used for RFID card, explain their structure and working. (5)
 - 7. What is a CAN bus? Where is it used? Describe the CAN protocol bringing out the architecture, message formats and error detection in detail. (15)
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