

B.TECH
(SEM VI) THEORY EXAMINATION 2022-23
MICROCONTROLLERS & EMBEDDED SYSTEM

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If require any missing data, then choose suitably.

SECTION A

1. **Attempt all questions in brief.** 2 x 10 = 20
- (a) Explain the Block Diagram of a DAC
 - (b) Explain Synchronous and Asynchronous Communication System
 - (c) List the features of MSP 430
 - (d) Explain Absolute Addressing mode in MSP 430
 - (e) Draw the register diagram of WDT
 - (f) Explain the Features of RTC.
 - (g) Difference between RISC and CISC
 - (h) List the various SFR in MSP 430.
 - (i) Explain the operating frequency of Bluetooth
 - (j) List the features of Wi-fi

SECTION B

2. **Attempt any three of the following.** 10x3=30
- (a) Discuss MPU 3340 ADC in detail
 - (b) Discuss all types of addressing modes in MSP 430.
 - (c) Describe the register Block Diagram in MSP 430
 - (d) Illustrate the process of Watchdog Timer in MSP 430
 - (e) Illustrate the Concept of PWM in MSP 430

SECTION C

3. **Attempt any one part of the following:** 10x1=10
- (a) Explain the I2C Protocol in MSP 430.
 - (b) Analyze the significance NFC, Bluetooth and Zigbee.
4. **Attempt any one part of the following:** 10x1=10
- (a) Explain the architecture of AVR Family.
 - (b) Draw the architecture of MSP 430
5. **Attempt any one part of the following:** 10x1=10
- (a) Write a program to Implement I2C
 - (b) Illustrate IoT applications using CC3100 user API for connecting sensor
6. **Attempt any one part of the following:** 10x1=10
- (a) Explain User APIs for Wireless and Networking applications
 - (b) Illustrate the block diagram of comparator in MSP 430 also explain its working
7. **Attempt any one part of the following:** 10x1=10
- (a) Illustrate the block diagram of DMA also explain how data transfer with DMA
 - (b) Write a Program to implement UART.