B. TECH
(SEM IV) THEORY EXAMINATION 2017-18
MICROPROCESSOR AND MICRO-CONTROLLER

Time: 3 Hours   *Total Marks: 70*

Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 7 = 14**
    a. Write a program to add two 16-bit numbers in 8085.
    b. Define Pull-up /Pull -down resistor concept in MSP430 Micro -controller
    c. Explain Immediate and Indirect Register addressing modes in 8085 microprocessor.
    d. Write down any four GPIO registers
    e. Draw and Explain Flag Register model in 8085 microprocessor.
    f. Define functionality of WDTPW and WDTNMI
    g. Write a program to find 2's compliment of a 16-bit number in 8085.

SECTION B

2. **Attempt any *three* of the following:**   **7 x 3 = 21**

    a. Draw and explain the PIN Diagram of 8085 microprocessor.
    b. How WDT (Watch Dog Timer) works in MSP430? Explain.
    c. Explain SIM and RIM instructions with their control word format.
    d. Explain SPI protocol and communication interface with MSP430.
    e. Explain 8279 Keyboard and its interfacing with 8085 microprocessors.

SECTION C

3. **Attempt any *one* part of the following:**   **7 x 1 = 7**
    a. Write a Program in 8085 to sort a series of numbers in Ascending Order.
    b. Explain the Architecture of 8085 microprocessor.

4. **Attempt any *one* part of the following:**   **7 x 1 = 7**
    a. Interface 8085 microprocessor with 4Kb EPROM and 2Kb RAM using 3*8 decoder. Also write down the range of addresses for both EPROM and RAM.
    b. Interface 8255 PPI (Programmable Peripheral Interface) with 8085 microprocessor.

5. **Attempt any *one* part of the following:**   **7 x 1 = 7**
    a. Draw and explain functional block diagram of MSP430x5x series
    b. Explain various addressing modes with example of each of MSP 430 series.

6. **Attempt any *one* part of the following:**   **7 x 1 = 7**
    a. Explain the working of PWM (Pulse width modulation) with its block diagram.
    b. What are the various GPIO resistors in MSP430x5xx? Explain each resistor **in** brief.

7. **Attempt any *one* part of the following:**   **7 x 1 = 7**
    a. What are the different transfer mode in the DMA? Explain in brief
    b. Explain the Data frame format in I2C communication