

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