B TECH
(SEM VII) THEORY EXAMINATION 2022-23
ADVANCED MICRO PROCESSORS & MICRO CONTROLLERS

Time: 3 Hours   Total Marks: 100

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

SECTION A

1.   **Attempt *all* questions in brief.**   2 x 10 = 20

(a)   Write the features of MSP430 Microcontroller.
(b)   Discuss the function of instruction queue in 8086.
(c)   How the 20 bit effective address is calculated in 8086 processor.
(d)   Differentiate maskable and non-maskable interrupts.
(e)   Name the operating modes of Timer IC 8253/54.
(f)   What are the different flags in 8086?
(g)   Explain the maximum mode and minimum mode signal descriptions of 8086.
(h)   List the features of ARM Processor.
(i)   Name the different addressing modes of MSP microcontroller.
(j)   Differentiate between Real mode and protected mode.

SECTION B

2.   **Attempt any *three* of the following:**   10 x 3 = 30

(a)   Draw the PIN diagram of 8086 microprocessor and discuss about each pin. Explain MIN/MAX mode operation of an 8086 processor?
(b)   Explain the different addressing modes of 8086 with its examples.
(c)   Draw the Block Diagram of ARM Processor and also explain its features.
(d)   Draw the Block Diagram 0f 80286 and also explain its features.
(e)   Explain the I/O pin multiplexing, pull up/down registers, GPIO control of MSP430.

SECTION C

3.   **Attempt any *one* part of the following:**   10 x 1 = 10

(a)   Draw the architecture of 8086 Microprocessors and explain its all blocks.
(b)   Explain the memory segmentation of 8086 in details.

4.   **Attempt any *one* part of the following:**   10 x 1 = 10

(a)   Explain the various Interrupt structures of 8086 and also explain interrupt handling capability of 8086.
(b)   Explain the different arithmetic operation and logical operation instruction available in 8086.

5.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

  (a)   Explain the control word format for I/O mode of 8255 PPI.
  (b)   Interfacing programmable peripheral interface 8255 with 8086.

6.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

  (a)   Draw and explain the interfacing of Timer IC 8253 with 8086.
  (b)   Describe in details about the Real mode and protected mode memory addressing of higher order processors.

7.   **Attempt any *one* part of the following:**   **10 x 1 = 10**

  (a)   Draw the architecture of MSP430 Microcontroller and mention its various functional blocks.
  (b)   Describe the addressing modes of MSP430 microcontroller in details.