Sub Code: KEE 070

Roll No.

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.

- (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:
 - (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:

- (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:

- (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.

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 $2 \ge 10 = 20$

 $10 \ge 3 = 30$

 $10 \ge 1 = 10$

 $10 \ge 1 = 10$

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5. Attempt any *one* part of the following:

- (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: $10 \ge 1 = 10$

- (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:

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

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 $10 \ge 1 = 10$

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