Code: 15A04601 **R15**

B.Tech III Year II Semester (R15) Regular Examinations May/June 2018

MICROPROCESSORS & MICROCONTROLLERS

(Common to EEE, ECE & EIE)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What does the pin MN/MX do in 8086 processor?
(b) Give the format of the flag register in 8086 processor.
(c) What is the use of PUSH in 8086?
(d) Define immediate addressing mode of 8086 microprocessor with example.
(e) Differentiate between RISC and CISC processors.
(f) Which are the low power operating modes of MSP430?
(g) List clock circuit and registers used to control function of clock module of MSP430.
(h) Write an ALP to check whether the content of the register R4 of MSP430 is even/odd.
(i) Give the format of asynchronous serial data communication.
(j) Mention the purpose of CC3100.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain the functional block diagram of 8086 microprocessor with neat diagram.

OR

3 Draw the complete schematic of 8086 processor memory interface in minimum mode with the following specifications.
(i) 16 k of EPROM.
(ii) 32 k OF RAM.

UNIT – II

4 Clearly explain the addressing modes of the 8086 processor with suitable instruction examples.

OR

5 Write an 8086 program to perform unpacked BCD division. (e.g 75/2) (operands are stored in the memory).

UNIT – III

6 Sketch the functional block diagram of MSP430 microcontroller and briefly explain its architecture.

OR

7 (a) Show the memory map of F2013 MSP430 and explain it briefly.
(b) Briefly explain about the 16 registers of MSP430 CPU.

UNIT – IV

8 Explain the clock system of MSP430 with the help of its simplified block diagram.

OR

9 Interface a push button switch and a simple LED to MSP430 and write a C program to switch on the LED whenever the button is pressed.

UNIT – V

10 Explain briefly about the communication peripherals that are available in MSP430.

OR

11 (a) Explain serial communication SCI & SPI, compare the same.
(b) Explain CAN features and protocols.

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