

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2017

**EMBEDDED SYSTEMS**

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
  - (a) Differentiate CSIC and RISC design.
  - (b) Write down the special features of MSP430.
  - (c) What are the advantages of pull up and pull down register?
  - (d) Briefly discuss the structure and working of FRAM cell.
  - (e) Justify the difference between timer and real time clock.
  - (f) What are the uses of DMA interface?
  - (g) Compare USB and SPI.
  - (h) What are the advantages and limitations of 12C protocol?
  - (i) What is IoT? What are the benefits?
  - (j) List out the applications of IoT.

**PART – B**

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

**UNIT – I**

- 2 Explain about the features and architecture considerations of embedded system design.

**OR**

- 3 Discuss about instruction set and addressing modes of MSP430.

**UNIT – II**

- 4 Describe about the functional blocks and address space capabilities of MSP430x5x with block diagram.

**OR**

- 5 Explain the types of interrupts included in MSP430x5x series. Also develop the procedure for interrupt programming.

**UNIT – III**

- 6 Discuss about ADC interfacing in MSP430 with diagram.

**OR**

- 7 Explain in detail about data transfer using DMA.

**UNIT – IV**

- 8 Write short notes on:

- (a) UART protocol.
- (b) SPI protocol.

**OR**

- 9 Explain the implementation of 12C interface using MSP430 with necessary sketch.

**UNIT – V**

- 10 Describe in detail about the architecture of IoT.

**OR**

- 11 Discuss about the implementation of Wi-Fi connectivity in smart electric meter.

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