(viii) Name the communication Peripherals in the MSP430 microcontroller.

(ix) Name the various addressing modes MSP430 microcontroller. What is the crystal oscillator frequency of MSP430 microcontroller ?

(x) What is asynchronous interface used in the microcontroller ?   10×2=20

July-22-00325

B.Tech. (CBS) EXAMINATION, 2022

Semester V (CBS)

INTRODUCTION TO MICROCONTROLLER AND EMBEDDED SYSTEM

EC-506

Time : 3 Hours   *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. Discuss the block diagram of MSP430×5× microcontroller.   **10**

2. (a) Discuss the on-chip peripherals of MSP430×5× microcontroller. **5**

   (b) Discuss the various addressing modes of 16-bit microcontroller. **5**

Section B

3. Discuss the programming system registers for the microcontroller. **10**

4. (a) Discuss the MSP430 based watchdog timer scheme of the microcontroller. **5**

   (b) Discuss the concepts of energy and power consumption estimation for embedded board. **5**

Section C

5. Discuss the scheme of data transfer in microcontroller using DMA. **10**

6. (a) Discuss the case study of remote controller of air conditioner using MSP430. **5**

(b) Discuss the timing generation concept of the microcontroller. **5**

Section D

7. Explain the serial communication techniques preferably used for microncontroller. **10**

8. Discuss various asynchronous interface used for the microcontroller. **10**

(Compulsory Question)

9. (i) What is UART ?

   (ii) What is Embedded System ?

   (iii) What is pull up/down register ?

   (iv) What do you mean by interrupt ? What are their types ?

   (v) What is Watchdog Timer ? Write its applications.

   (vi) What happens when the subroutine is called ?

   (vii) What is the Real-Time Clock control register ?