TE/Sem V/ CBSGS/ETRX/MCA/30-11-17
&
RTC

Q. P. Code: 25077

[Time: 3 hours] **[Marks: 80]**

Note:-1. Q.1 is compulsory

2. Out of remaining 5 solve any 3

3. Figures to the right indicate full marks

Q.1 **Solve any 4**

a. Explain any 5 addressing modes of 8051 with 1 example. 5

b. Explain how Thumb mode improves code density .Give 2 instructions to switch between ARM and thumb mode. 5

c. Connect 2 LED's to p1.1 and p1.2 of 8051 µc respectively .show interfacing diagram and write a program to blink the two led's alternately with a delay of 1 msec. 5

d. Write a program for 8051µc to find factorial of number 05H 5

e. Explain following instructions of 8051 µc 5

i) MOV A,@R0 ii) SETB bit iii) JNC rel iv) MOVCA, @A+DPTR v) CPL C

f. Explain operation of barrel shifter in ARM 7 TDMI 5

Q.2 a. Draw and explain memory organization of 8051 µc 10

b. Explain various modes of operation of ARM7 TDMI with associated registers. 10

Q.3 a .Write a program to generate a square wave of frequency 50 HZ on port pin P2.3 of 8051 µc. Show count calculations clearly and the required TMOD settings. 10

b. Explain the structure of I/O ports of 8051 µc with neat diagram. 10

Q.4 a. Interface an 8 bit ADC to 8015 µc and explain its working in detail. 10

b. Write an assembly language program for sending message "BEST" serially at 9600 baud continuously using 8051 . 10

Q.5 a. Explain following ARM instructions 10

i) ADD R3, R2, R1 ii) CMP R8, R2 iii) TST R2, R5 iv) STMFD R13 [R0- R2, R14] v) CMN R1, R2

b. Design 8051 based system with following specifications 10

i) 16 Kb RAM using 8 Kb devices

ii) 16 Kb ROM using 8 Kb devices

show detailed memory map and chip select logic .Draw interfacing diagram.

Q.6 Write short notes on **any 4** 20

a. Power saving modes of 8051

b. DC motor interfacing with 8051 µc

c. Key architectural features of ARM7TDMI

d. Interrupt structure of 8051

e. Interfacing 16x8 LCD to 8051µc

****

33FB24E5AE4CF9DAE754A30C94DC8FE6