Time:-3 Hours **Marks:-80**

N.B: 1) Question No 1 is Compulsory

2) Attempt any three from remaining questions.

Q1) a) Justify why the ports of 8051 are initialised to FFH when operating in input Mode. (5)

b) Justify the statement "ARM Cortex M3 has reduced Power Consumption" (5)

c) Write the Instructions to access the On Chip Program Memory, On Chip Data Memory External Data Memory, instruction to Modify Bit addressable area respectively. What is Difference between MOV 20h, #01h and SETB 20H instructions. (5)

d) Calculate the Relative address for the Label "BACK" in the following Program (5)

P.C	Label	Instructions
0000H		MOV R0, #20H
0002H		MOV A, #50H
0004H		JZ LAST
0006H	BACK	INC R0
0007H		INC A
0008H		ADD R0,A
0009H		JNC BACK
000BH	HERE	SJMP HERE

Q2) a) Write a program to generate a wave with on time 4ms and off time 6ms on Port pin P1.5. Use Crystal Frequency =22 Mhtz. (10)

b) Write a Program to Transmit message "Mumbai" serially at 9600 Baud Rate. Show the Baud Rate Calculation. (10)

Q3 a) Explain the Programmer's Model and operating Modes of ARM Cortex M3 (10)

b) Write a Program to Generate a "Triangular wave" if SW1=0 and Ramp wave if SW1=1. Using DAC0808 (10)

Q4 a) Explain how interrupt Latency is Reduced in ARM Cortex M3. (10)

b) Explain the interrupt structure of 8051 and related registers used (10)

Q5) a) Write a Program to display the Temperature value obtained from the sensor LM35 connected to channel 3 of ADC 0808. (10)

b) Write a Program to Rotate a Stepper Motor continuously using half step 8 sequence. Assume the value stored in the Look up Table stored at address 0400H (10)

Q6) Write Notes on any three (20)

a) MMU of ARM of Cortex M3
b) Significance of GATE pin of 8051.
c) IP Register
d) Application of Timer / Counter Mode of 8051

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