

Q 1. PROBLEM STATEMENT: Form a one to one mapping between port A & port B of 8255

Label	Mnemonics		Comments
	Opcode	Operand	
Start	MVI	A,90H	Set port A as input & port B as o/p mode. I/p bites of port A & o/p to port B
LOOP:	OUT	83H	
	IN	80H	
	OUT	81H	
	JMP	LOOP	

No. of bytes = 11

Q 2. PROBLEM STATEMENT: Rotate Port B of 8255

Label	Mnemonics		Comment
	Opcode	Operand	
Start	MVI	A,90H	Set port A as input & port B as o/p mode. O/p the bits of A & rotate it left without carry.
LOOP:	OUT	83H	
	MVI	A,01H	
	OUT	81H	
	RLC		
	LOOP		
		JMP	

No. of bytes = 12

Q 3. PROBLEM STATEMENT: For a sine wave in channel 0 of 0809, take the sample corresponding to it in successive memory location.

Label	Mnemonics		Comment
	Opcode	Operand	
Start	LXI	H,2300H	Sampled data is stored from 2300H to 27ffH Channel 1 of A/D is selected & delayed for end of conversion. Digital data is taken & saved in memory location. Counter is checked.
SAMPLE:	LXI	B,04FFH	
	OUT	40H	
	LXI	D,0018H	
	CALL	05F1H	
	IN	40H	
	MOV	M,A	
	INX	H	
	DCX	B	
	MOV	A,C	
	ORA	B	
	JNZ	SAMPLE	
End	RST1		

No. of bytes = 32

Q 8.1 PROBLEM STATEMENT: Generate a saw-tooth wave using a dac.

Label	Mnemonics		Comment
	Opcode	Operand	
Start	MVI	C,00H	Starting from 00H upto FFH digital values are sent to dac one after one until FFH is reached. Delay is for adjust frequency.
INCREMENT	MOV	A,C	
	OUT	81H	
	LXI	D,3FFFH	
	CALL	05F1H	
	INR C		
End	JMP	INCREMENT	

No. of bytes = 16

Q 8.2 PROBLEM STATEMENT: Generate a Triangular wave using a dac.

Label	Mnemonics		Comment
	Opcode	Operand	
Start	MVI	C,7FH	Triangular wave starts from midvalue. Starting from 00H upto FFH digital values are sent to dac one after one until FFH is reached. If FFH is achieved , it jumps to loop DECREMENT.
INCREMENT	MOV	A,C	
	OUT	81H	
	LXI	D,3FFFH	
	CALL	05F1H	
DECREMENT	INR	C	
	MOV	A,C	
	CPI	FFH	
	JNZ	INCREMENT	
	JMP	DECREMENT	
	OUT	81H	
	LXI	D,3FFFH	
	CALL	05F1H	
	DCR	C	
	MOV	A,C	
End	CPI	00H	FFH is decremented until 00H is reached & then jump to loop INCREMENT.
	JNZ	DECREMENT	
	JMP	INCREMENT	

No. of bytes = 44

Q 8.3 PROBLEM STATEMENT: Generate a square wave using a dac.

Label	Mnemonics		Comment
	Opcode	Operand	
Start	MVI	C,FFH	Alternatively hi & lo output is produced with certain delay for frequency adjustment.
HIGH:	MOV	A,C	
	OUT	81H	
	LXI	D,4FFFH	
	CALL	05F1H	
End	SUB	A	
	OUT	81H	
	LXI	D,4FFFH	
	CALL	05F1H	
	JMP	HIGH	

No. of bytes = 25