8.8 The content of AC in basic computer is Hex A937 & the initial value of E is 1. Find the content of AC, E, PC, AR and IR in Hex after the execution of CLA instruction. Repeat the problem also for CMA, CME, INC SNA and SZE instructions. PC = 021 H

	E	AC	PC	AR	IR
Initial	1	A937	021	–	–
CLA	1	0000	022	800	7800
CMA	1	56C8	022	2800	7200
CME	0	A937	022	100	7100
INC	1	A938	022	020	7020
SNA	1	A937	023	008	7008
SZE	1	A937	022	002	7002

AC = $(A937)_{16}$

= 1010 1001 0011 0111

After CMA instruction,

AC = 0101 0110 1100 1000 = $(56C8)_{16}$

Q9 An instruction at address 021 has I = 0 an opcode of AND instruction, and an address part = 083. (All no. are in Hex The memory word at address 083 contai the operand B8F2 and AC = A937. Find the content of PC, AR, DR, AC and IR after execution of AND, instruc Repeat the problem with 6 more time Starting with opcode for MRI.

	PC	AR	DR	AC	IR
Initial	021	-	-	A937	-
AND	022	083	B8F2	A832	0083
ADD	022	083	B8F2	6229	1083
LDA	022	083	B8F2	B8F2	2083
STA	022	083	-	A937	3083
BUN	083	083	-	A937	4083
BSA	084	084	-	A937	5083
ISZ	022	083	B8F3	A937	6083

Q.10 The content of PC = 3AF (in Hex)
AC = 7EC3
The content of memory address 3AF = 932E
The content of memory at address 32E = 09AC
The content of memory at address 9AC = 8B9F

(i) What is the instruction that will be fetched & executed ? Show the binary operation that will be performed in AC.

Address	Operand
3AF	932E
32E	09AC
9AC	8B9F

AC = 7EC3

(i) 9 = $(1001)_2$
I bit = 1 Opcode : 001
: ADD instruction

1 ADD 32E

After execution AC ← 7EC3 + 8B9F
AC = 0A62, E = 1

(ii) Give the content of register PC, AR, DR, AC and IR in Hex and values of E, I and Seq. Counter SC in binary at the end of instruction cycle.

PC = 3AF + 1 = 3B0

AR = 9AC IR = 932E

DR = 8B9F E = 1

AC = 0A62 I = 1 SC = 0000