Question 1: An XYZ computer's instruction set (the number of instructions it can perform) is given below. Each instruction takes 4 bytes (one word) in the memory. Integer takes two bytes in memory. Character takes 1 byte in memory. The initial contents on the memory, state of CPU (PC register value) and a simple program is given below. Run the program (one instruction at a time in the sequence according to fetch and execute cycle).

Program:	Character / Data Shown on screen (Show decimal values in case of integers, and show actual alphabets incase of character data)
ADD 110 95 40	NA
SHOW INT 110	
SUB 116 110 40	NA
SHOW INT 116	
SHOW CHAR 130	
SHOW CHAR 131	
SHOW CHAR 132	
SHOW CHAR 133	
SHOW CHAR 134	

PC (Program Counter Register)   : 10

Memory:

Location	Contents
10	00000001
11	01101110
12	01011111
13	00101000
14	
15	
16	
17	
……	
40	00000000
41	00110010
…	
95	00000000
96	00110111
….	
110	01010100
111	00001111
112	01010010
113	00010101
114	00101010
115	00010101
116	00001001
117	00010101
….	
130	01001000
131	01000101
132	01001100
133	01001100
134	01001111
…..	

Instruction	Binary Code	Description
ADD Dest OP1 OP2 Example: ADD 110 95 40	INS CODE DEST LOC OP1 LOC OP2 LOC 00000001 01101110 01011111 00101000	Adds the values present at memory locations 95, 40 and stores it at location 110
SUBTRACT Dest Op1 OP2 Example: SUB 116 110 40	INS CODE DEST LOC OP1 LOC OP2 LOC 00000010 01110100 01101110 00101000	Subtracts the value present at 40 from value present at 110 and stores it at location 116

SHOW INT Example: SHOW INT 116	INS CODE ------------OP LOC---------------- 00000100 00000000 00000000 01110100	Reads an integer of two bytes from location 116 and shows it on screen
SHOW CHAR Example: SHOW 130	INS CODE ------------OP LOC---------------- 00001000 00000000 00000000 10000010	Reads an alphabet of one byte from location 130 and shows it on screen

Question 2: After the execution of the given program, give the address of those memory locations whose value will be changed. Also write the values.