

Problem statement : Apply PassII of a two-pass Assembler to the following given data structures and generate the machine code:

1)Intermediate Code (IC)

IC for Opcode	IC for Operand1	IC for Operand2
(AD,01)	(C,101)	
(IS,09)	(S,01)	
(IS,04)	(2)	(S,02)
(IS,04)	(2)	(S,03)
(IS,03)	(2)	(S,03)
(IS,04)	(3)	(S,03)
(IS,01)	(3)	(S,02)
(IS,05)	(3)	(S,03)
(IS,06)	(3)	(S,01)
(IS,07)	(2)	(S,04)
(IS,08)	(2)	(S,05)
(IS,05)	(2)	(S,06)

(IS,10)	(S,06)	
(IS,00)		
(DL,02)	(C,1)	
(DL,02)	(C,1)	
(DL,01)	(C,1)	
(DL,02)	(C,1)	
(DL,01)	(C,2)	
(AD,02)		

2)Symbol Table (SYMTAB)

Symbol	Address
N	114
ONE	116
TERM	117
AGAIN	104
TWO	118
RESULT	115

Solution

Intermediate Code (IC)			Machine Code			
IC for Opcode	IC for Operand1	IC for Operand2	LC	Machine code for Opcode	Machine code for Operand1	Machine code for Operand2
(AD,01)	(C,101)		No Machine Code			
(IS,09)	(S,01)		101)	09	0	114
(IS,04)	(2)	(S,02)	102)	04	2	116
(IS,04)	(2)	(S,03)	103)	05	2	117
(IS,03)	(2)	(S,03)	104)	03	2	117
(IS,04)	(3)	(S,03)	105)	04	3	117
(IS,01)	(3)	(S,02)	106)	01	3	116
(IS,05)	(3)	(S,03)	107)	05	3	117
(IS,06)	(3)	(S,01)	108)	06	3	114

(IS,07)	(2)	(S,04)	109)	07	2	104
(IS,08)	(2)	(S,05)	110)	08	2	118
(IS,05)	(2)	(S,06)	111)	05	2	115
(IS,10)	(S,06)		112)	10	0	115
(IS,00)			113)	00	0	000
(DL,02)	(C,1)		114)	No machine code	No machine code	No machine code
(DL,02)	(C,1)		115)	No machine code	No machine code	No machine code
(DL,01)	(C,1)		116)	00	0	001
(DL,02)	(C,1)		117)	No machine code	No machine code	No machine code
(DL,01)	(C,2)		118)	00	0	001
(AD,02)						