ASSIGNMENT ON ASSEMBLY CODING

1. For the given expression, X=(A+B) *C write assembly code using

(i) 1 address instruction

(ii) 0 address instruction

OPCODE – SUM, MUL, PUSH, POP, LOAD, MOVE

OPERAND – A, B, C

ANSWER

(i) 1 address instruction

LOAD A

ADD B

STORE T

LOAD C

MUL T

STORE X

(ii) 0 address instruction

LOAD A

PUSH A

PUSH B

ADD

PUSH C

MUL

POP X

2. Write 3 address instruction set for the given expressions:

(i) P = A - (B + C * D) / E

(ii) X = (((A + 7) * (B / C)) - (2 * D))

ANSWER

(i) P = A - (B + C * D) / E

MUL R1, C, D

ADD R2, R1, B

DIV R3, R2, E

SUB P, A, R3

(ii) X = (((A + 7) * (B / C)) - (2 * D))

ADD R1, A, 7

DIV R2, B, C

MUL R3, R1, R2

MUL R4, D, 2

SUB X, R3, R4

3.   Write an assembly code to calculate the sum of squares of 4 and 5 through registers. OPCODE – MUL, MOVE, ADD

REGISTERS – R1, R2

ANSWER

X = 4*4 + 5*5

MOV R1, 4

MUL R1, 4

MOV R2, 5

MUL R2, 5

ADD R1, R2