C1,2,4,5

Perform conversion from decimal to hexa.

**6258\_10 to hex**

6258

391 – 2

24 – 7

2. Two’s Complement

Using 8-bit system, Perform binary subtraction using two’s comeplement, verify answer by showing answer in signed decimal value.

**15-23**

0000 1111 (15)

0001 0111 (23)

1st: 110 1000

2nd complement: 1110 1001

1110 1001 (-23)

1111 1000

-128+64+32+16+8 = -8

15-23 = -8

Valid.

(Hae multiply, plus and minus)

Excess-55 floating point, 1 for negative, 9 for positive.

Multiply 2 numbers,

95234577

15557890

52 + 55 – 55 = 52

0.34577 \* 0.57890 = 0.20017 (can round up cause 5 digits ennough)

Positive \* negative = negative

15220017

Sign and magnitude

-0.20017 \* 10^-3

**How to change decimal to binary**

**IEEE 752**

**LMC (Little man computer)**

4. Show changes of contents in IR, PC, MAR, MDR, A. Execution instruction 22 nd 23

PC: 22

Value in mem loc 22: 670 (LOAD)

Val in mem loc 23 271 (MUL)

Val in mem loc 24: 470 (STORE)

Val in mem loc 70: A\_16

Val in mem loc 71: 5\_16

|  |  |
| --- | --- |
| Instruction 22 | Registers |
| PC -> MAR | MAR: 22 |
| MDR -> IR | IR: 670 |
| IR address -> MAR | MAR: 70 |
| MDR -> A | A: A16 |
| PC = PC+1 | PC: 23 |
| Instruction 23 | Registers |
| PC -> MAR | PC: 23 |
| MDR -> IR | IR: 271 |
| IR[address] -> MAR | MAR: 71 |
| A \* MDR -> A | A: 32H |
| PC = PC + 1 | PC = 24 |
|  |  |

CISC, RISC, Bus

Debug:

All commands

A

U

R

D

E

T

P

Q

H

C

5. Issue DEBUG command for these instruction

a. Execute 10 instructions at once

**-t 10**

P=10, 0200 (cannot use P becaues need offset)

b. Display content of memory at CS starting from offset 0100H

**-d CS:0100**

**Mid-term test**