EXPERIMENT NO- 6

AIM: WAP to find GCD of two numbers

Resource Required: P-IV and above RAM 128MB, Dot Matrix Printer, Emu 8086, MASM 611/ TASM, Turbo C/C++, Printer, Printout Stationary.

THEORY: GCD stands for Greatest Common Divisor. GCD is largest number that divides the given numbers. The instructions used in this program are:

1) MOV Destination Source

Move a byte/word from the source to the destination specified in the instruction.

Source: Register, Memory location, immediate number

Destination: Register, Memory location

Both source & destination cannot be memory locations.

Example: MOV Register, Register

MOV Memory location, Register

MOV Register, Memory location

MOV Register data.

2) JUMP Label/address: This is unconditional jump .It transfers the control of execution to the specified address

3) JE label/address: This is conditional jump. These instructions only execute when the ZF = 1 is true.

4) JB label/address: This is conditional jump. These instructions only execute when the CF = 1 is true.

ALGORITHM:

Step I : Initialize the data segment

Step II : Load AX and BX registers with the operands.

Step III : Check if the two numbers are equal. If yes goto step X, else goto

step IV.

Step IV : Is number 1 > number 2? If yes goto step VI else goto step V.

Step V : Exchange the contents of AX and BX register, such that AX

contains the bigger number.

Step VI : Initialize DX register with 00H.

Step VII : Perform the division operation (contents of AX / contents of BX).

Step VIII : Check if there is remainder. If yes goto step IX, else goto step X.

Step IX : Move the remainder into AX register and goto step IV

Step X : Save the contents of BX as GCD.

Step XI : Display the result.

Step XII : Stop.

CONCLUSION: We have successfully calculated GCD of two numbers using Euclidean algorithm in Assembly language using EMU 8086

Code and Output: