1.Write an assembly language program for adding two 8-bit data A7 A6 A5 A4 A3 A2 A1 A0 and B7 B6 B5 B4 B3 B2 B1 B0 using 8085 processor

LDA 8500

MOV B,A

LDA 8501

ADD B

STA 8502

RST 1

2.Write an assembly language program for subtraction of two 8-bit data A7 A6 A5 A4 A3 A2 A1 A0 and B7 B6 B5 B4 B3 B2 B1 B0 using 8085 processor

LXI H,8500

Mov B,A

INX H

Sub A

Mov A,B

RST 1

3.Write an assembly language program for multiplication of two 8-bit data A7 A6 A5 A4 A3 A2 A1 A0 and B7 B6 B5 B4 B3 B2 B1 B0 using 8085 processor

LDA 8500

MOV B,A

LDA 8501

MOV C,A

CPI 00

JZ LOOP

XRA A

LOOP1:ADD B

DCR C

JZ LOOP

JMP LOOP1

LOOP:STA 8502

RST 1

4.Write an assembly language program for division of two 8-bit data A7 A6 A5 A4 A3 A2 A1 A0 and B7 B6 B5 B4 B3 B2 B1 B0 using 8085 processor

LDA 8501

MOV B,A

LDA 8500

MVI C,00

LOOP:CMP B

JC LOOP

SUB B

INR C

JMP LOOP

STA 8503

MOV A,C

STA 8502

RST 1

5.Write an assembly language program for adding two 16-bit datausing 8086 processor.

MOV SI,1200H

LODSW

MOV BX,AX

LODSW

ADD BX,AX

MOV DI,1300H

MOV[DI],BX

HLT

6.Write an assembly language program for subtracting two 16-bit datausing 8086 processor.

MOV SI,1200H

LODSW

MOV BX,AX

LODSW

SUB BX,AX

MOV DI,1300H

MOV[DI],BX

HLT

7.Write an assembly language program for multiplying two 16-bit datausing 8086 processor.

LHLD 8500

MOV D,H

MOV E,L

LDA 8502

MOV C,A

CPI 00

JZ LOOP1

LXJ H,0000

LOOP:DAD A

DCR C

JZ LOOP1

JMP LOOP

LOOP1:SHLD 8503

HLT

8.Write an assembly language program for dividing two 16-bit datausing 8086 processor.

MOV DX,0000

MOV AX,0006H

MOV CX,0004H

DIV CX

MOV DI,1300H

MOV[DI],AH

INC DJ

MOV[DI],AH

INC DI

MOV[DI],DX

HLT

9.Write an assembly language program to find factorial of n in the given number

LXJ H,8500

MOV B,H

MVI D,01H

CALL MULTIPLY

DCR B

JNZ FACTORIAL

INX H

MOV M,D

HLT

MOV E,B

MVI A,00H

ADD D

DCR E

JNZ MULTIPLYLOOP

MOV D,A

RET

10.Write an assembly language program to find the largest number in an array.

LXI H,2000

MOV C,M

INX H

MOV B,M

DCR C

LOOP:INX H

MOV A,M

CMP B

JC SKIP

MOV B,A

SKIP:DCR C

JNZ LOOP

LXI H,2010

MOV M,B

HLT

11.Write an assembly language program to find 1’s and 2’s complement of 8 bit number.

LDA 3000

CMA

STA 3001

ADI 01

STA 3002

HLT

12.Write a program to convert Decimal number to Binary number using any high level language.

#include<stdio.h>

#include<stdlib.h>

int main(){

int a[10],n,i;

printf("Enter the number to convert: ");

scanf("%d",&n);

for(i=0;n>0;i++)

{

a[i]=n%2;

n=n/2;

}

printf("\nBinary of Given Number is=");

for(i=i-1;i>=0;i--)

{

printf("%d",a[i]);

}

return 0;

}

13.Write a program to convert Decimal number to an Octal number using any high level language.

#include <stdio.h>

int main()

{

long decimalnum, remainder, quotient,octalnum=0;

int octalNumber[100], i = 1, j;

printf("Enter the decimal number: ");

scanf("%ld", &decimalnum);

quotient=decimalnum;

while (quotient != 0)

{

octalNumber[i++] = quotient % 8;

quotient = quotient / 8;

}

for (j = i - 1; j > 0; j--)

octalnum = octalnum\*10 + octalNumber[j];

printf("Equivalent octal value of decimal no %d is: %d ", decimalnum,octalnum);

return 0;

}

14.Write a program to convert Binary number to Decimal number using any high level language.

#include <stdio.h>

#include <math.h>

int convert(long long);

int main() {

long long n;

printf("Enter a binary number: ");

scanf("%lld", &n);

printf("%lld in binary = %d in decimal", n, convert(n));

return 0;

}

int convert(long long n) {

int dec = 0, i = 0, rem;

while (n!=0) {

rem = n % 10;

n /= 10;

dec += rem \* pow(2, i);

++i;

}

return dec;

}

15.Write a program to find the CPU performance of a processor using any high level language.

#include <stdio.h>

int main()

{

float cr;

int p,p1,i;

float cpu[5]

float cpi,ct,max;

int n=1000;

for(i=0;i<=4;i++)

{

cpu[5]=0;

}

printf("\n Enter the number of processors:");

scanf("%d",&p);

p1=p;

for(i=0;i<p;i++)

{

printf("\n Enter the Cycles per Instrcution of processor:");

scanf("%f",&cpi);

printf("\n Enter the clockrate in GHz:");

scanf("%f",&cr);

ct=1000\*cpi/cr;

printf("The CPU time is: %f",ct);

cpu[i]=ct;

}

max=cpu[0];

//printf("%f", max);

for(i=0;i<p1;i++)

{

if(cpu[i]<=max)

max=cpu[i];

}

printf("\n The processor has lowest Execution time is: %f ", max);

return 0;

}

16.Write an assembly language program to swap two 8-bit datausing 8085 processor.

LDA 2500

MOV B,A

LDA 2501

STA 2500

MOV A,B

STA 2501

HLT

17.Write a program to perform Booth’s multiplication of two signed numbers using any high level language.

#include<stdlib.h>

#include<stdio.h>

int acum[100]={0} ;

void add(int acum[],int b[],int n);

int q[100],b[100];

int main()

{

int x,y;

printf("Enter the Number :");

scanf("%d%d",&x,&y);

int i=0;

while(x>0||y>0)

{

if(x>0)

{

q[i]=x%2;

x=x/2;

}

else

{

q[i]=0;

}

if(y>0)

{

b[i]=y%2;

y=y/2;

}

else

{

b[i]=0;

}

i++;

}

int n=i;

int bc[50];

printf("\n");

for(i=0;i<n;i++)

{

if(b[i]==0)

{

bc[i]=1;

}

else

{

bc[i]=0;

}

}

bc[n]=1;

for(i=0;i<=n;i++)

{

if(bc[i]==0)

{

bc[i]=1;

i=n+2;

}

else

{

bc[i]=0;

}

}

int l;

b[n]=0;

int k=n;

int n1=n+n-1;

int j,mi=n-1;

for(i=n;i!=0;i--)

{

for(j=n;j>0;j--)

{

acum[j]=acum[j-1];

}

acum[0]=q[n-1];

for(j=n-1;j>0;j--)

{

q[j]=q[j-1];

}

add(acum,bc,n+1);

if(acum[n]==1)

{

q[0]=0;

add(acum,b,n+1);

}

else

{

q[0]=1;

}

}

printf("\nQuoient : ");

for( l=n-1;l>=0;l--)

{

printf("%d",q[l]);

}

printf("\nRemainder : ");

for( l=n;l>=0;l--)

{

printf("%d",acum[l]);

}

return 0;

}

void add(int acum[],int bo[],int n)

{

int i=0,temp=0,sum=0;

for(i=0;i<n;i++)

{

sum=0;

sum=acum[i]+bo[i]+temp;

if(sum==0)

{

acum[i]=0;

temp=0;

}

else if (sum==2)

{

acum[i]=0;

temp=1;

}

else if(sum==1)

{

acum[i]=1;

temp=0;

}

else if(sum==3)

{

acum[i]=1;

temp=1;

}

}

}

18.Write a program to perform Restoring Division of two numbers using any high level language.

#include <stdio.h>

#include <math.h>

int a = 0,b = 0, c = 0, a1 = 0, b1 = 0, com[5] = { 1, 0, 0, 0, 0};

int anum[5] = {0}, anumcp[5] = {0}, bnum[5] = {0};

int acomp[5] = {0}, bcomp[5] = {0}, pro[5] = {0}, res[5] = {0};

void binary(){

a1 = fabs(a);

b1 = fabs(b);

int r, r2, i, temp;

for (i = 0; i < 5; i++){

r = a1 % 2;

a1 = a1 / 2;

r2 = b1 % 2;

b1 = b1 / 2;

anum[i] = r;

anumcp[i] = r;

bnum[i] = r2;

if(r2 == 0){

bcomp[i] = 1;

}

if(r == 0){

acomp[i] =1;

}

}

c = 0;

for ( i = 0; i < 5; i++){

res[i] = com[i]+ bcomp[i] + c;

if(res[i] >= 2){

c = 1;

}

else

c = 0;

res[i] = res[i] % 2;

}

for (i = 4; i >= 0; i--){

bcomp[i] = res[i];

}

if (a < 0){

c = 0;

for (i = 4; i >= 0; i--){

res[i] = 0;

}

for ( i = 0; i < 5; i++){

res[i] = com[i] + acomp[i] + c;

if (res[i] >= 2){

c = 1;

}

else

c = 0;

res[i] = res[i]%2;

}

for (i = 4; i >= 0; i--){

anum[i] = res[i];

anumcp[i] = res[i];

}

}

if(b < 0){

for (i = 0; i < 5; i++){

temp = bnum[i];

bnum[i] = bcomp[i];

bcomp[i] = temp;

}

}

}

void add(int num[]){

int i;

c = 0;

for ( i = 0; i < 5; i++){

res[i] = pro[i] + num[i] + c;

if (res[i] >= 2){

c = 1;

}

else{

c = 0;

}

res[i] = res[i]%2;

}

for (i = 4; i >= 0; i--){

pro[i] = res[i];

printf("%d",pro[i]);

}

printf(":");

for (i = 4; i >= 0; i--){

printf("%d", anumcp[i]);

}

}

void arshift(){//for arithmetic shift right

int temp = pro[4], temp2 = pro[0], i;

for (i = 1; i < 5 ; i++){//shift the MSB of product

pro[i-1] = pro[i];

}

pro[4] = temp;

for (i = 1; i < 5 ; i++){//shift the LSB of product

anumcp[i-1] = anumcp[i];

}

anumcp[4] = temp2;

printf("\nAR-SHIFT: ");//display together

for (i = 4; i >= 0; i--){

printf("%d",pro[i]);

}

printf(":");

for(i = 4; i >= 0; i--){

printf("%d", anumcp[i]);

}

}

int main(){

int i, q = 0;

printf("\t\tBOOTH'S MULTIPLICATION ALGORITHM");

printf("\nEnter two numbers to multiply: ");

printf("\nBoth must be less than 16");

//simulating for two numbers each below 16

do{

printf("\nEnter A: ");

scanf("%d",&a);

printf("Enter B: ");

scanf("%d", &b);

}while(a >=16 || b >=16);

printf("\nExpected product = %d", a \* b);

binary();

printf("\n\nBinary Equivalents are: ");

printf("\nA = ");

for (i = 4; i >= 0; i--){

printf("%d", anum[i]);

}

printf("\nB = ");

for (i = 4; i >= 0; i--){

printf("%d", bnum[i]);

}

printf("\nB'+ 1 = ");

for (i = 4; i >= 0; i--){

printf("%d", bcomp[i]);

}

printf("\n\n");

for (i = 0;i < 5; i++){

if (anum[i] == q){//just shift for 00 or 11

printf("\n-->");

arshift();

q = anum[i];

}

else if(anum[i] == 1 && q == 0){//subtract and shift for 10

printf("\n-->");

printf("\nSUB B: ");

add(bcomp);//add two's complement to implement subtraction

arshift();

q = anum[i];

}

else{//add ans shift for 01

printf("\n-->");

printf("\nADD B: ");

add(bnum);

arshift();

q = anum[i];

}

}

printf("\nProduct is = ");

for (i = 4; i >= 0; i--){

printf("%d", pro[i]);

}

for (i = 4; i >= 0; i--){

printf("%d", anumcp[i]);

}

}

19. Write a program to find the Hit ratio for the given number of Hits and Misses in Cache memory using any high level language.

#include<stdio.h>

Int main()

{

Float h,m;

Float hit\_ratio

Printf(“enter the number of hits:”);

Scanf(“%f&h”);

Printf(“enter the number of miss”);

Scanf(“%f&M”);

Hit\_ratio=h/(h+m);printf(“hit\_ratio=%f”,hit\_ratio);

}