DS Lab Cycle 1.6 - Set operations

Do the set operations

U={1,2,3,4,5}

A={1,4,5}

B={2,3,4}

find AuB, AnB, A-B, B-A in bit vector representation

**Source Code :**

#include <stdio.h>

void main()

{

int U[5]={1,2,3,4,5},A[5]={1,0,0,1,1},B[5]={0,1,1,1,0},uni[5],ints[5],diffA[5],diffB[5], i,compA[5],compB[5];

printf("The universal set : ");

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

printf("%d\t",U[i]);

printf("\nThe Set A : ");

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

{

if(A[i]==1)

printf("%d\t",U[i]);

}

printf("\nThe Set B : ");

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

{

if(B[i]==1)

printf("%d\t",U[i]);

}

printf("\nBit representation of AUB : ");

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

{

uni[i]=A[i]|B[i];

printf("%d\t",uni[i]);

}

printf("\n AUB =\t");

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

{

if(uni[i]==1)

printf("%d\t",U[i]);

}

printf("\nBit representation of AnB : ");

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

{

ints[i]=A[i]&B[i];

printf("%d\t",ints[i]);

}

printf("\n AnB =\t");

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

{

if(ints[i]==1)

printf("%d\t",U[i]);

}

printf("\nComplement of A : ");

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

{

compA[i]=1-A[i];

printf("%d\t",compA[i]);

}

printf("\nA' =\t");

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

{

if(compA[i]==1)

printf("%d\t",U[i]);

}

printf("\nComplement of B : ");

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

{

compB[i]=1-B[i];

printf("%d\t",compB[i]);

}

printf("\nB' =\t");

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

{

if(compB[i]==1)

printf("%d\t",U[i]);

}

printf("\nDifference of A : ");

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

{

diffA[i]=A[i]&compB[i];

printf("%d\t",diffA[i]);

}

printf("\n A-B =\t");

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

{

if(diffA[i]==1)

printf("%d\t",U[i]);

}

printf("\nDifference of B : ");

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

{

diffB[i]=B[i]&compA[i];

printf("%d\t",diffB[i]);

}

printf("\n B-A =\t");

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

{

if(diffB[i]==1)

printf("%d\t",U[i]);

}

}

**Output**:

The universal set : 1 2 3 4 5

The Set A : 1 4 5

The Set B : 2 3 4

Bit representation of AUB : 1 1 1 1 1

AUB = 1 2 3 4 5

Bit representation of AnB : 0 0 0 1 0

AnB = 4

Complement of A : 0 1 1 0 0

A' = 2 3

Complement of B : 1 0 0 0 1

B' = 1 5

Difference of A : 1 0 0 0 1

A-B = 1 5

Difference of B : 0 1 1 0 0

B-A = 2 3