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SEM = 6th Sem

PAPER NAME = INFORMATION SECURITY & CYBER LAWS

PAPER CODE =

Ques 5 WACP to implement playfair ciphor for plain text "go with the flow" with key "key".

⇒
```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#define SIZE 30
void toLowerCase(char plain[], int ps)
{
 int i;
 for (i=0; i<ps; i++)
 {
  if (plain[i]>64 && plain[i]<91)
     plain[i] += 32;
 }
}
int removeSpaces(char* plain, int ps)
{
```

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```
int i, count = 0;
for (i=0; i<ps; i++)
if (plain[i] != ' ')
 plain [count++] = plain[i];
 plain [count++] = plain[i];
 plain [count] = '\0';
 return count;
}
void generateKeyTable (char key [], int ks, char keyT
[5] [5])
{
int i, j, k, flag=0, *dicty;
 dicty = (int *) calloc (26, sizeof (int));
 for(i=0; i<ks; i++)
 {
 if (key [i] != 'j')
  dicty [key [i] - 97) = 2;
 }
 dicty ['j' - 97] = 1;
   i = 0;
   j = 0;
```

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```
for (k=0 ; k<ks; k++)
{
if (dicty [key[k]-97]==2)
{
 dicty [key[k]-97]=1;
  keyT[i][j] = key[k];
  j++;
  if (j==5)
  {
   i++;
   j=0;
 }
}
}
for (k=0; k<26 ; k++)
{
if (dicty [k] == 0)
{
keyT[i][j] = (char) (k+97);
 j++;
 if (j == 5)
 { i++ ;
```

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```
    j=0;
  }
 }
}
}
void search (char keyT[5][5], char a, char b, int ars[])
 {
 int i,j;
 if (a=='j')
   a='i';
 elseif (b=='j')
   b='i';
 for(i=0;i<5;i++)
 {
 for(j=0;j<5;j++)
 {
 if keyT[i][j]==a)
  {
  ars[0]=i;
  ars[1]=j;
 }
```

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```
    elseif (KeyT [i] [j] == b)
     {
       arr [2] = i;
       arr [3] = j;
     }
    }
   }
}
int mod5 (int a)
{
return (a % 5);
}
intPrepase (char Str [], int ptrs)
{
 if (ptrs % 2 != 0)
 {
 Str [ptrs ++] = '2';
 Str [ptrs] = '\0';
 }
 return ptrs;
 }
```

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```
void encrypt (char str[], char keyT[5][5], int ps)
{
 int i, a[4];
 for (i=0; i<ps ; i+=2)
 {
  search (keyT, str[i] , str[i+1], a);
  if (a[0] == a[2])
  {
 str[i] = keyT [a[0]] [mod5 [a[1] + 1)];
 str[i+1] = keyT [a[0]] [mod5 a[3] + 1)];
  }
  else if a[1] == a[3])
  {
  str[i] = keyT [mod5 (a[0] + 1)] [a[1]];
  str[i+1] = keyT [mod5 (a[2] + 1)] [a[1]];
  }
  else
 {
 str[i] = keyT [a[0]] [a[3]];
  str[i+1] = keyT [a[2]] [a[1]];
   }
   }
   }
```

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```
void encryptBy playfair cipher (char str[], char key[])
{
 char PS, KS, keyT[5][5];
  KS = strlen (key);
  KS = removespaces (key, KS);
  PS = strlen (str);
  to lowercase (str, PS);
  PS = remove spaces (str, PS);
  PS = Prepare (str, PS);
  generatekeyTable (key, KS, keyT);
  encrypt (str, keyT, PS);
  }
  int main()
{
char str [SIZE], key [SIZE];
strcpy (key, "key");
printf ("key text : %s \n", key);
strcpy (str, "go with the flow");
Printf ("Plain text : %s \n", str);
encryptBy playfair cipher (str, key);
Printf ("Ciphes text : %s \n", str);
  return 0;
}
```

Phasing
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```
ey text: key
lain text: go with the flow
ipher text: hnumzozoydmixu

--------------------------------
rocess exited after 0.02521 seconds with return value 0
ress any key to continue . . .
```