НТУУ “КПІ”

Кафедра Обчислювальної техніки

**Лабораторна робота №7**

з дискретної математики

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**Варіант №13**

Граф С1:



Граф С2



Остов графа С2



Стягуванню двох ребер графів С1 і С2





Об’єднання С1 і С2



Лістинг програми:

Program lab6;

type

TFlag = 0..1;

TIndex = ShortInt;

TMatrix = array [TIndex, TIndex] of TFlag;

var

p1,p2,q,i,j,a,b: TIndex;

c1,c2,ost,union: TMatrix;

color: array [TIndex] of Integer;

begin

Write('Input the number of peaks: ');

Readln(p1);

Write('Input the number of ribs: ');

Readln(q);

write('Input the ribs: ');

for i := 1 to q do

begin

read(a,b);

c1[a,b] := 1;

c1[b,a] := 1;

end;

Write('Input the number of peaks: ');

Readln(p2);

Write('Input the number of ribs: ');

Readln(q);

write('Input the ribs: ');

for i := 1 to q do

begin

read(a,b);

c2[a,b] := 1;

c2[b,a] := 1;

end;

for i := 1 to p2 do

color[i] := i;

for i := 1 to p2 do

for j := 1 to p2 do

if (ost[i,j] = 0) and (c2[i,j] = 1) and (color[j] <> color[i]) then

begin

ost[i,j] := 1;

ost[j,i] := 1;

b := color[i];

for a := 1 to p2 do

if color[a] = b then color[a] := color[j];

end;

Writeln('Ostov graph');

for i := 1 to p2 do

begin

for j := 1 to p2 do

Write(ost[i,j],' ');

writeln;

end;

for i := 1 to p1-3 do

begin

if (c1[p1,i] = 1) or (c1[p1-1,i] = 1) then

c1[p1-2,i] := 1;

c1[i,p1-2] := c1[p1-2,i];

end;

p1 := p1-2;

writeln('C1');

for i := 1 to p1 do

begin

for j := 1 to p1 do

write(c1[i,j],' ');

writeln;

end;

for i := 1 to p2-3 do

begin

if (c2[p2,i] = 1) or (c2[p2-1,i] = 1) then

c2[p2-2,i] := 1;

c2[i,p2-2] := c2[p2-2,i];

end;

p2 := p2-2;

writeln('C2');

for i := 1 to p2 do

begin

for j := 1 to p2 do

write(c2[i,j],' ');

writeln;

end;

for i := 1 to p1 do

for j := 1 to p1 do

begin

if (i > p2) or (j > p2) then

c2[i,j] := 0;

if (c1[i,j] = 1) or (c2[i,j] = 1) then

union[i,j] := 1;

union[j,i] :=

union[i,j];

end;

Writeln('Union');

for i := 1 to p1 do

begin

for j := 1 to p1 do

write(union[i,j],' ');

writeln;

end;

end.

|  |
| --- |
| 0 1 0 0 0 1 0 0 1  1 0 0 1 1 0 0 1 0  1 0 0 0 1 0 0 1 0  1 1 0 0 0 0 1 0 1  0 1 1 0 0 1 0 0 1  0 0 0 0 1 0 0 0 1  0 0 0 1 0 0 0 1 1  0 1 1 0 0 0 1 0 0  0 0 0 1 1 1 1 0 0 |

|  |
| --- |
| 0 0 1 1 1 1 0  0 0 0 1 1 1 0  1 0 0 1 0 0 1  1 1 1 0 0 0 1  1 1 0 0 0 1 1  1 1 0 0 1 0 1  0 0 1 1 1 1 0 |

|  |
| --- |
| 0 0 1 1 1 1 0 0 0  0 0 0 1 0 0 0 0 0  1 0 0 0 0 0 0 0 1  1 1 0 0 0 0 1 1 0  1 0 0 0 0 0 0 0 0  1 0 0 0 0 0 0 0 0  0 0 0 1 0 0 0 0 0  0 0 0 1 0 0 0 0 0  0 0 1 0 0 0 0 0 0 |

С1: C2: Ostov Graph:

|  |
| --- |
| 0 1 0 0 0 1 0 0 1  1 0 0 1 1 0 0 1 0  1 0 0 0 1 0 0 1 0  1 1 0 0 0 0 1 0 1  0 1 1 0 0 1 0 0 1  0 0 0 0 1 0 0 0 1  0 0 0 1 0 0 0 1 1  0 1 1 0 0 0 1 0 0  0 0 0 1 1 1 1 0 0 |

Union: