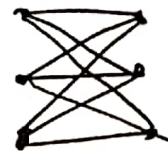
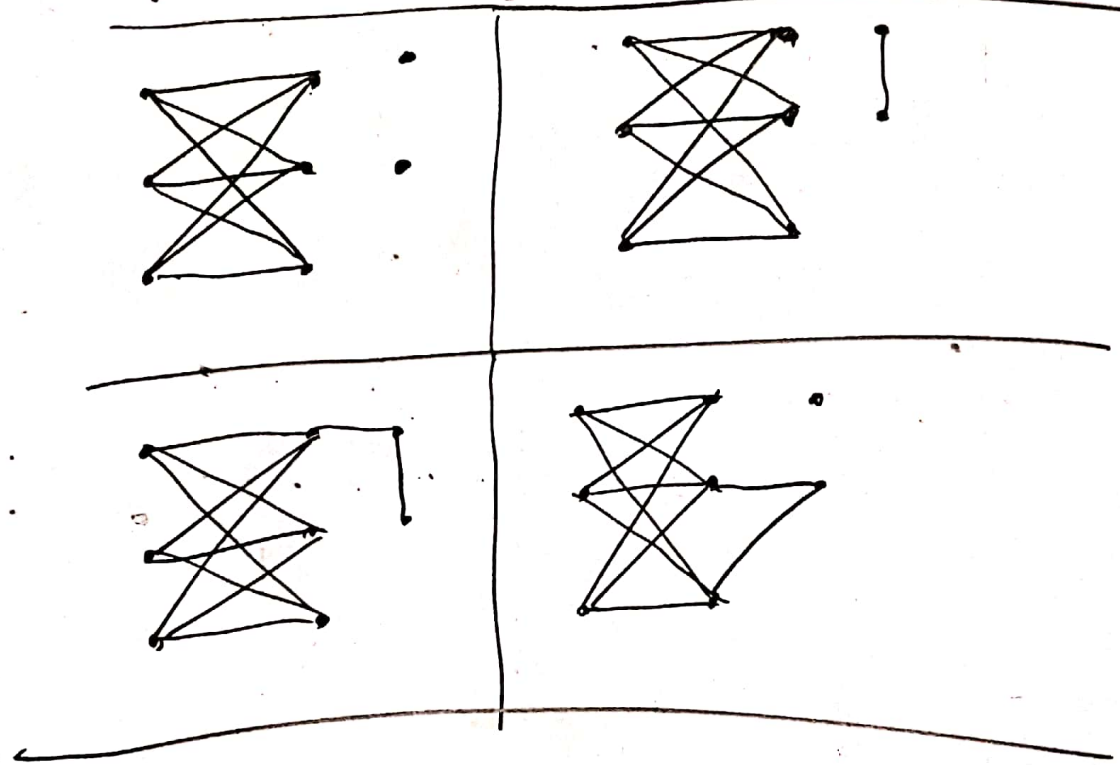


II KOLOKVIJUM, 1.6.2019, GRUPA 2

① a)  $K_{3,3}$  :  → BROJ GRANA: 9

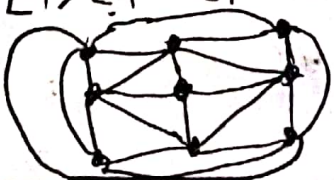
KOMBINACIJA 2 ČVORA I NAJVIŠE 2 GRANE



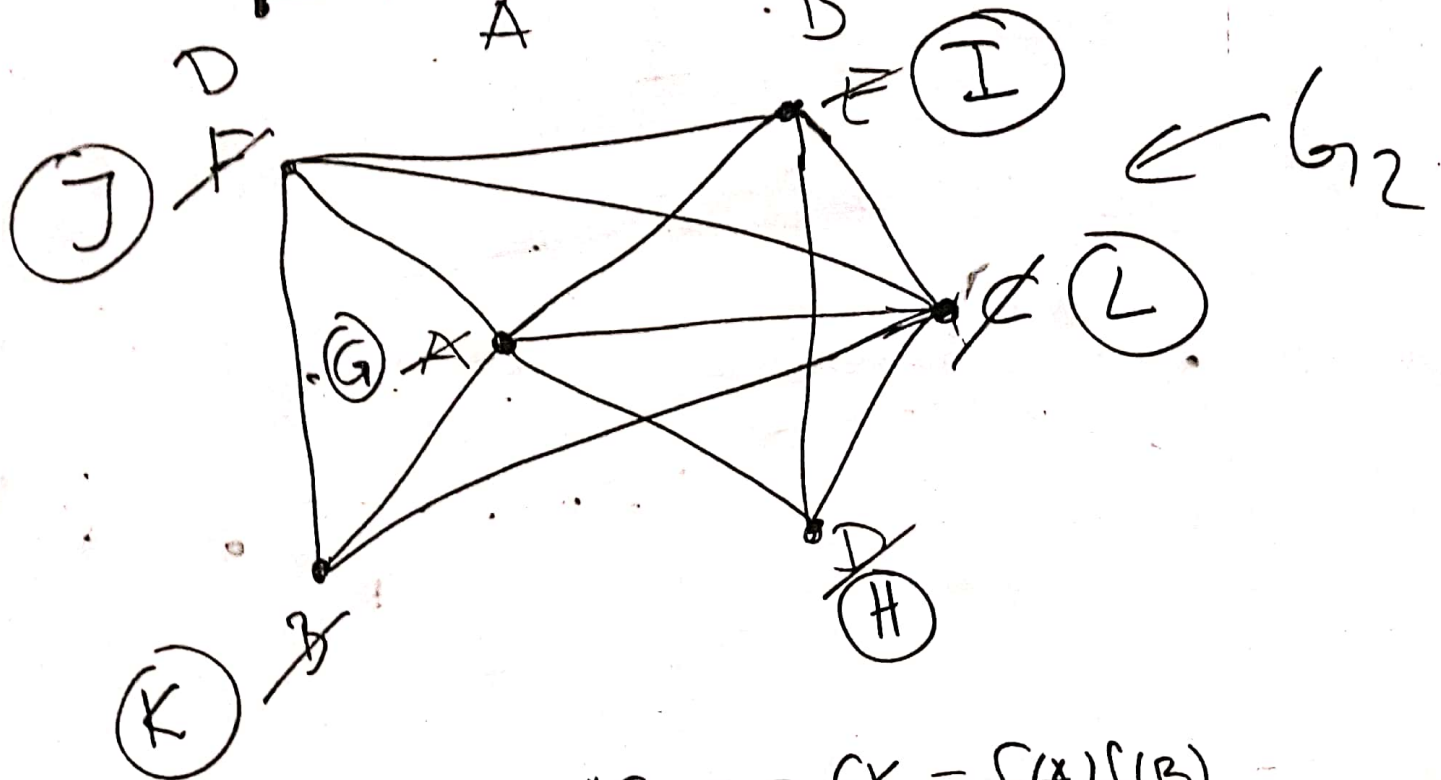
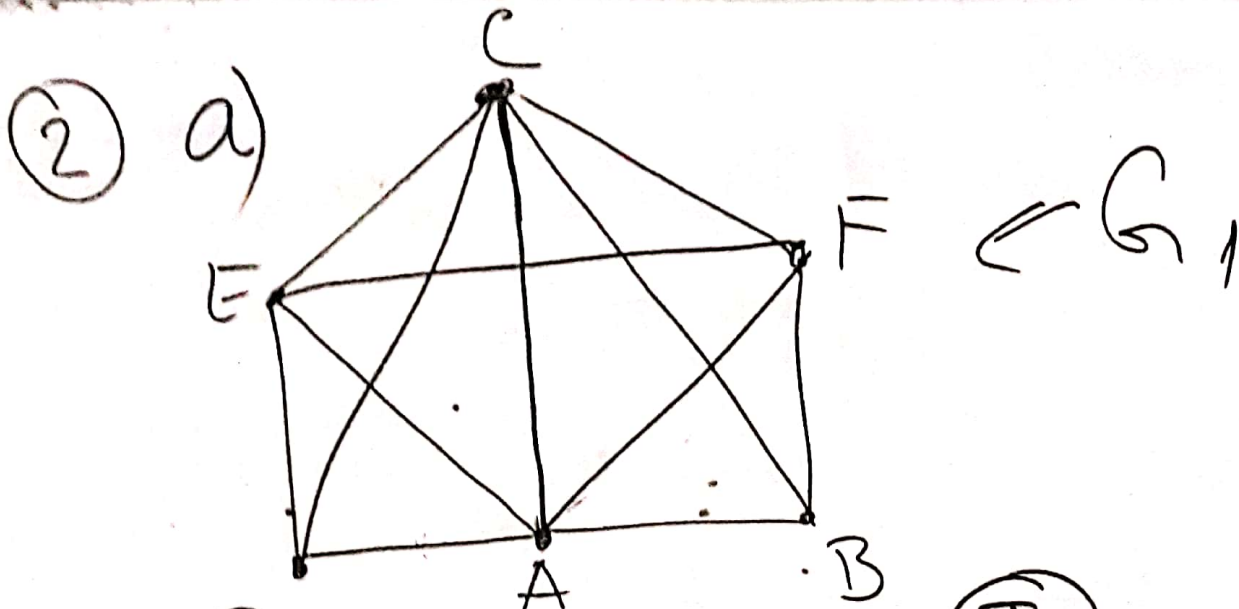
b) Eulerov graf ne može sadržati niti jedan most jer, nakon "prolaska" mostom ka drugoj komponenti povezivosti, morali bismo da se vratimo jedino preko istog mosta da bismo napravili Eulerov ciklus.

c)  $3 \cdot |V| - |E| < 6 \Rightarrow$  GRAF NIJE PLANARAN

$|E| > 21 \Rightarrow$  NIJE PLANARAN ;  $|E| \leq 21 \Rightarrow$  NE ZNAMO

$|E| = 21$  :  ISPOSTAVLJA SE DA POSTOJI

TEOREMA  
NE DAJE  
ODGOWR



$A \xrightarrow{f} G$   
 $B \xrightarrow{f} K$   
 $C \xrightarrow{f} L$   
 $D \xrightarrow{f} H$   
 $E \xrightarrow{f} I$   
 $F \xrightarrow{f} J$

$$AB \rightarrow GK = f(A)f(B)$$

$$FE \rightarrow JI = f(F)f(E)$$

$$JESU \quad G_1 \cong G_2$$

b)

$9 \times 2 = 18$  IGRÁČA  $\rightarrow$

18 ČVOROVA

SVAKO PO 7 PARTIJA  $\rightarrow$

SVAKI ČVOR  
STEPENA 7

IGRÁČI IZ ISTE EKIPÉ

• NE IGRÁJU MEĐUSOBNO  $\rightarrow$

BIPARTITAN  
GRAF

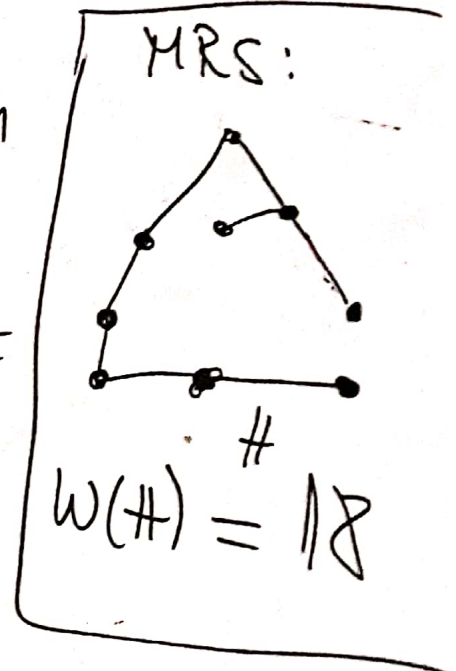
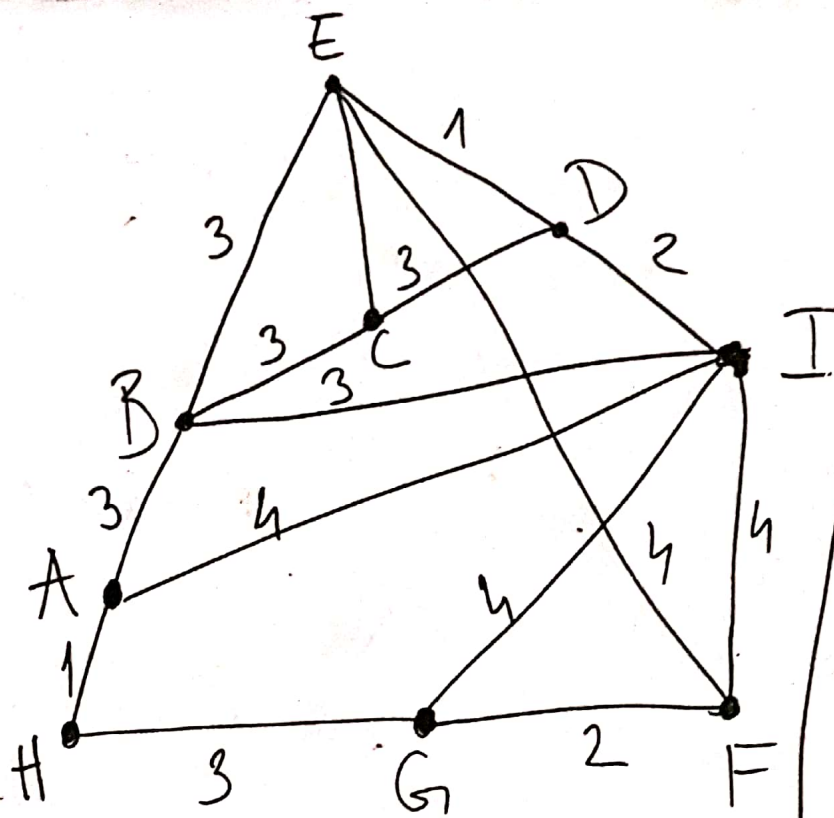
I EKIPA : 1, 2, 3, 4, 5, 6, 7, 8, 9

II EKIPA : A, B, C, D, E, F, G, H, I

①	VS.	A B C D E F G
②	VS.	B C D E F G H
③	VS.	C D E F G H I
④	VS.	D E F G H I A
⑤	VS.	E F G H I A B
⑥	VS.	F G H I A B C
⑦	VS.	G H I A B C D
⑧	VS.	H I A B C D E
⑨	VS.	I A B C D E F



③



$$1^0 \quad V' = E, \quad E' = \emptyset$$

$$2^0 \quad V' = \{E, D\}, \quad E' = \{ED\}$$

$$3^0 \quad V' = V' + I, \quad E' = E' + DI$$

$$4^0 \quad V' = V' + B, \quad E' = E' + BE \quad (1 \text{ li } BI, DC)$$

$$5^0 \quad V' = V' + A, \quad E' = E' + AB \quad (1 \text{ li } DC)$$

$$6^0 \quad V' = V' + H, \quad E' = E' + AH$$

$$7^0 \quad V' = V' + C, \quad E' = E' + DC \quad (1 \text{ li } HG)$$

$$8^0 \quad V' = V' + G, \quad E' = E' + HG$$

$$9 \quad V' = V' + F, \quad E' = E' + GF$$

STOP

4

$D_0 =$

A	B	C	D	E
$\infty$	2	4	7	$\infty$
$\infty$	$\infty$	4	$\infty$	$\infty$
$\infty$	$\infty$	$\infty$	3	7
$\infty$	5	$\infty$	$\infty$	5
4	2	$\infty$	$\infty$	$\infty$

$D_1 =$

$\infty$	2	4	7	$\infty$
$\infty$	$\infty$	4	$\infty$	$\infty$
$\infty$	$\infty$	$\infty$	3	7
$\infty$	5	$\infty$	$\infty$	5
4	2	8	11	$\infty$

$E_1 =$

0	0	1	1	0

$D_2 =$

$\infty$	2	4	7	$\infty$
$\infty$	$\infty$	4	$\infty$	$\infty$
$\infty$	$\infty$	$\infty$	3	7
$\infty$	5	9	$\infty$	5
4	2	6	11	$\infty$

$E_2 =$

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	0	0
0	0	2	1	0

$$D_3 = \begin{bmatrix} \infty & 2 & 4 & 7 & 11 \\ \infty & \infty & 4 & 7 & 11 \\ \infty & \infty & \infty & 3 & 7 \\ \infty & 5 & 9 & 12 & 5 \\ 4 & 2 & 6 & 9 & 13 \end{bmatrix}$$

$$E_3 = \begin{bmatrix} 0 & 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & 3 & 3 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 2 & 3 & 0 \\ 0 & 0 & 2 & 3 & 3 \end{bmatrix}$$

$$D_4 = \begin{bmatrix} \infty & 2 & 4 & 7 & 11 \\ \infty & 12 & 4 & 7 & 11 \\ \infty & 8 & 12 & 3 & 7 \\ \infty & 5 & 9 & 12 & 5 \\ 4 & 2 & 6 & 9 & 13 \end{bmatrix}$$

$$E_4 = \begin{bmatrix} 0 & 0 & 0 & 0 & 3 \\ 0 & 4 & 0 & 3 & 3 \\ 0 & 4 & 4 & 0 & 0 \\ 0 & 0 & 2 & 3 & 0 \\ 0 & 0 & 2 & 3 & 3 \end{bmatrix}$$

$$D_5 = \begin{bmatrix} 15 & 2 & 4 & 7 & 11 \\ 15 & 12 & 4 & 7 & 11 \\ 11 & 8 & 12 & 3 & 7 \\ 9 & 5 & 9 & 12 & 5 \\ 4 & 2 & 6 & 9 & 13 \end{bmatrix}$$

$$E_5 = \begin{bmatrix} 5 & 0 & 0 & 0 & 3 \\ 5 & 4 & 0 & 3 & 3 \\ 5 & 4 & 4 & 0 & 0 \\ 5 & 0 & 2 & 3 & 0 \\ 0 & 0 & 2 & 3 & 3 \end{bmatrix}$$

A  $\rightarrow$  E  
(1) (5)

~~1~~ ~~3~~ ~~5~~

$A \rightarrow C \rightarrow E$

DUŽINA: 11