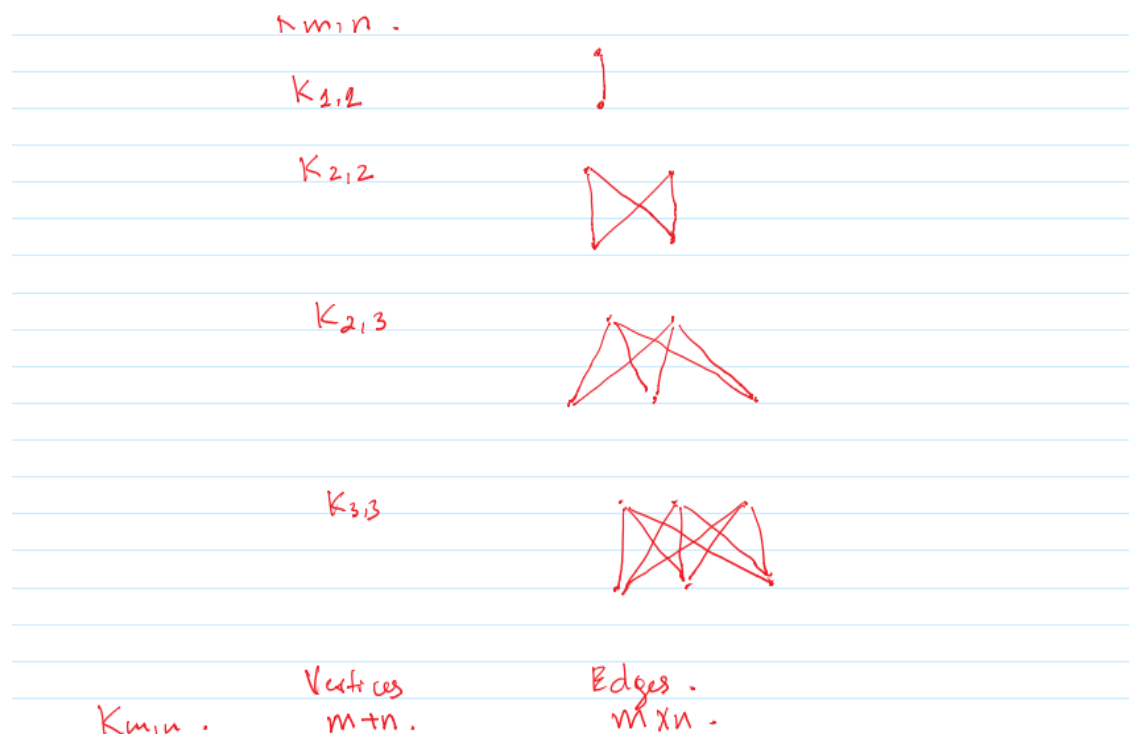
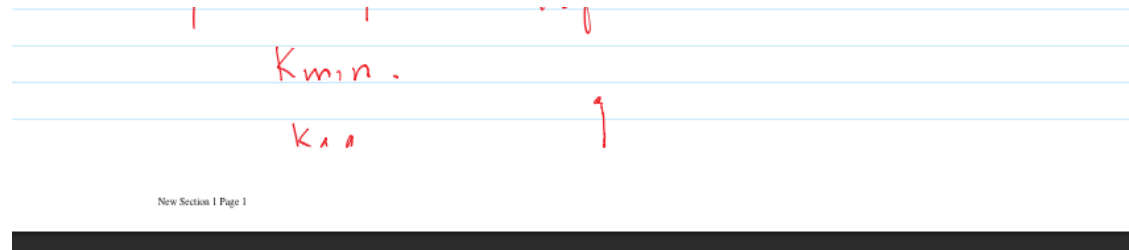


Discrete Lecture # 21

- Bi-Partile done in lecture 20 PDF
- Complete Bi-Partile Graph (lecture 20)

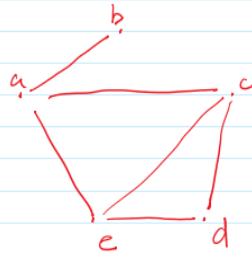


-
- Represented by m and n : m represents vertices in the top row and n represents vertices in the bottom row
- Graph Representation
- Adjacency List
 - Take a vertex and write its adjacent vertices in front of it , adjacent means the vertices that are directly connected with it

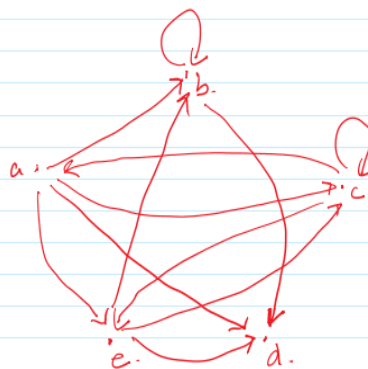
SSO

Graph Representation.

1- Adjacency list.



Vertex	Adjacent Vertices.
a	b, c, e
b	a
c	a, e, d
d	c, e
e	d, c, a.

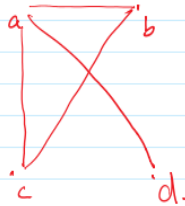


Initial Vertex	Terminal Vertices.
a	b, c, e, d.
b	b, d
c	a, c, e
d	
e	b, c, d.

● Adjacency Matrix

- Take all the vertices and put them in rows and column
- Now consider first row and all column, if there exist a edge between the row and the respected column, mark it 1 in the matrix if not then let it be 0

2- Adjacency Matrix



	a	b	c	d
a	0	1	1	1
b	1	0	1	0
c	1	1	0	0
d	1	0	0	0

- 1 No loop - All 0's on diagonal.
- 2 Degree of vertex = Row wise / Col wise Sum
Corresponding to a Vertex.

3- if the matrix is a 1-0 Matrix.

4- No Non-zero on main diagonal
No Value > 1 .

5- if any entry $> 1 \rightarrow$ Multi edges

-
- No loop means All 0's on diagonals
- Degree of a vertex is the column wise sum of it or row wise sum
- No non-zero on main diagonal , no value > 1
- If any entry is > 1 it means there is a - \rightarrow multiedge
- Incident Matrix:
 - In incident matrix we have vertices and V_i (i represents values) and edges labeled as E_i (i represents values)
 - In incident matrix vertices are rows
 - In incident matrix columns are edges
 - If the entries of any column is equal to the entries of any other column it means there is a multi edge