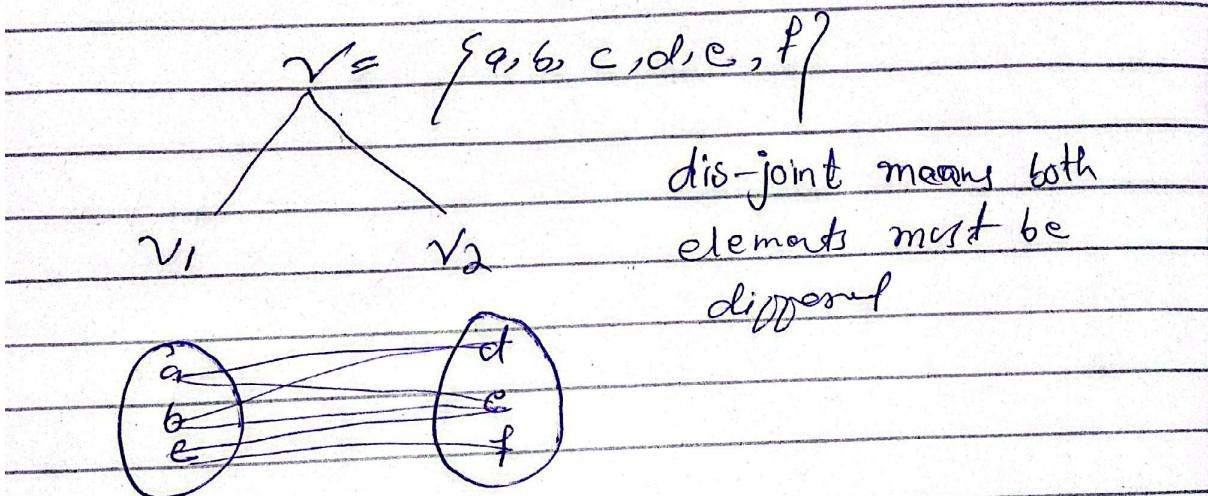


→ Bi-Partite graph is a graph where the vertices can be split into two groups (n and y)

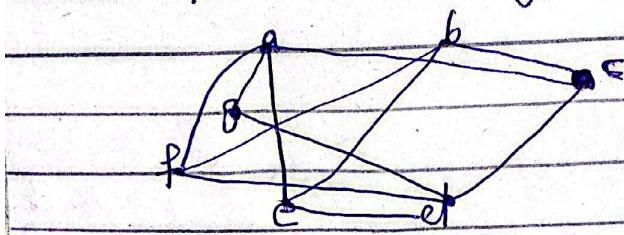
or

A simple graph is bipartite if its vertex set V can be partitioned into two disjoint sets V_1 and V_2 such that each edge of graph connects a vertex of V_1 to a vertex in V_2 .



Note: No edge connects either two vertices in V_1 or two vertices in V_2 .

Ex: Is the graph bipartite?



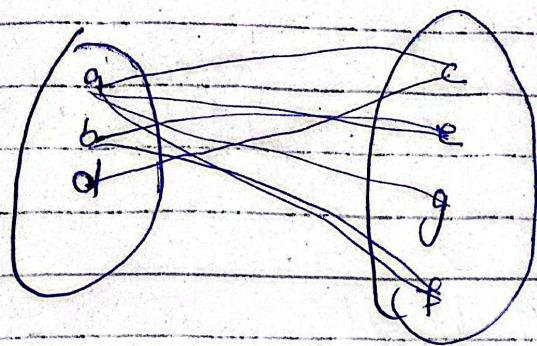
Now let's do partition.

First take a and see a is connected with ??

a

c
e
g

and Now see that c is connected with, that thing write over on 1st diagram.

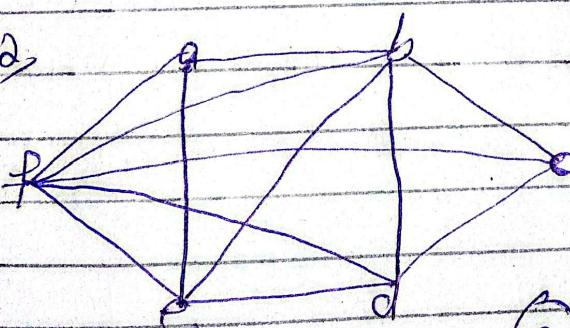


Note: we have to just create the partition
Not connection.

$$\text{so } V_1 = \{a, b, d\}$$

$$V_2 = \{c, e, g, f\}$$

Q2,



Is the graph
bi partite?

a
c
f
e

b
f
e

here b is connected
with the f which is

is correct. each element in both sets must be unique. Hence it is not ~~complete~~ bi-partite graph.

→ Complete bi-partite graphs means it must be bi-partite along with complete graph.

also Definitions. A bipartite graph in which every vertex of one set is connected with every vertex of another set. It is denoted by $K_{m,n}$.

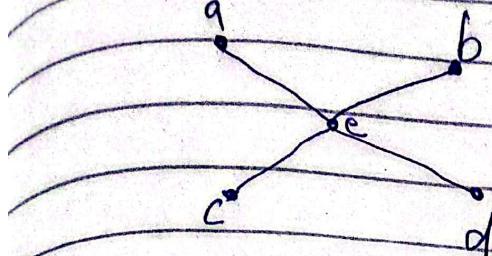
also in prev bipartite concept it was not compulsorily that every vertex was connected with others. It was not necessary.

but

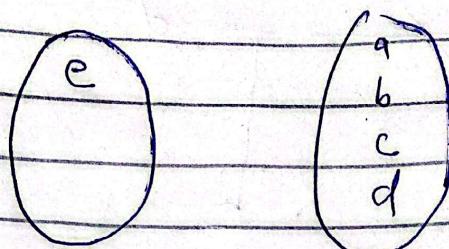
but if it is connected then it is known as complete bi-partite graph denoted by $K_{m,n}$.

ex:-

Is the graph complete
bi-partite?



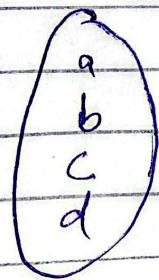
so



$$V_1 = \{e\}$$

$$V_2 = \{a, b, c, d\}$$

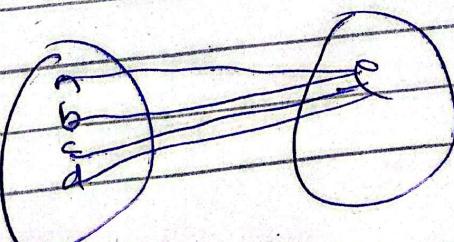
or let's take other value and check



so we got partition mean it is bi-partite
graph but is this complete graph?

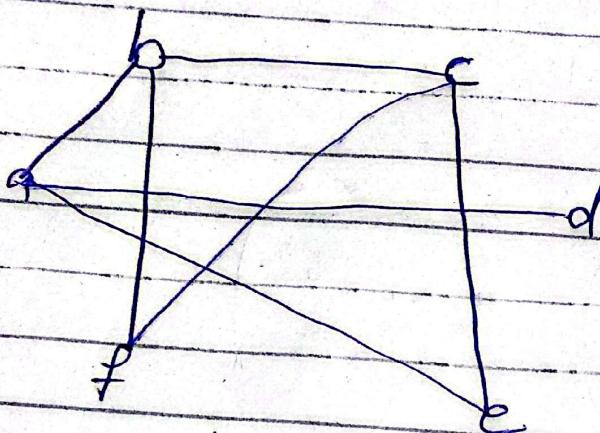
so now check is this complete??

so e is connected with every vertex
means all vertices are connected with
each other hence it is complete bi-partite
graph.

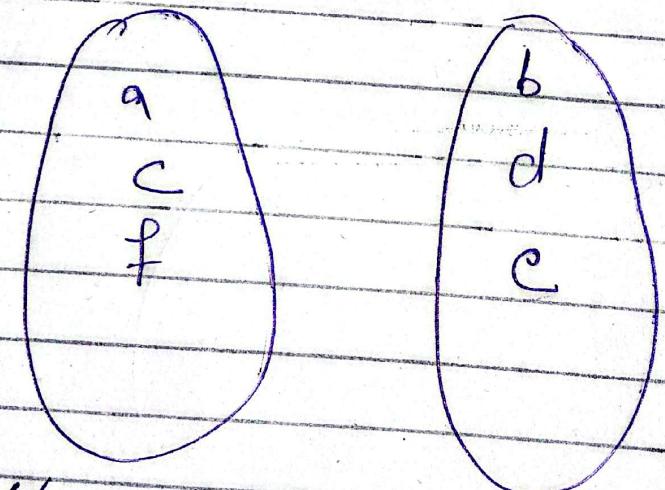


ex 2

Is the graph complete
bi-partite graph?



sol

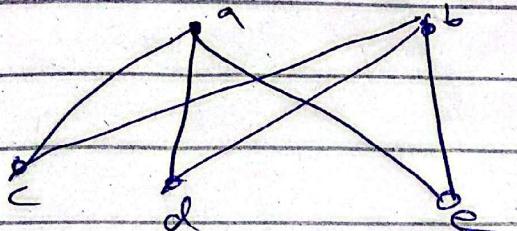


Hence it is not bi-partite graph.
means if is not a complete
bi-partite graph.

ex 3: Draw

$K_{2,3}$

means draw in which one have
2 vertices and other have 3.
and then connect with each other.



Hence it is complete
bi bipartite graph

You can assign name and can check
 $V_1 = \{a, b\}$
 $V_2 = \{c, d, e\}$