CS & IT

ENGINEERING

Discrete Maths
Graph Theory
Lecture No. 11



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TOPICS TO BE COVERED



01 Independent set

02 Maximal Independent set

03 Dominance set

04 Minimal dominating set

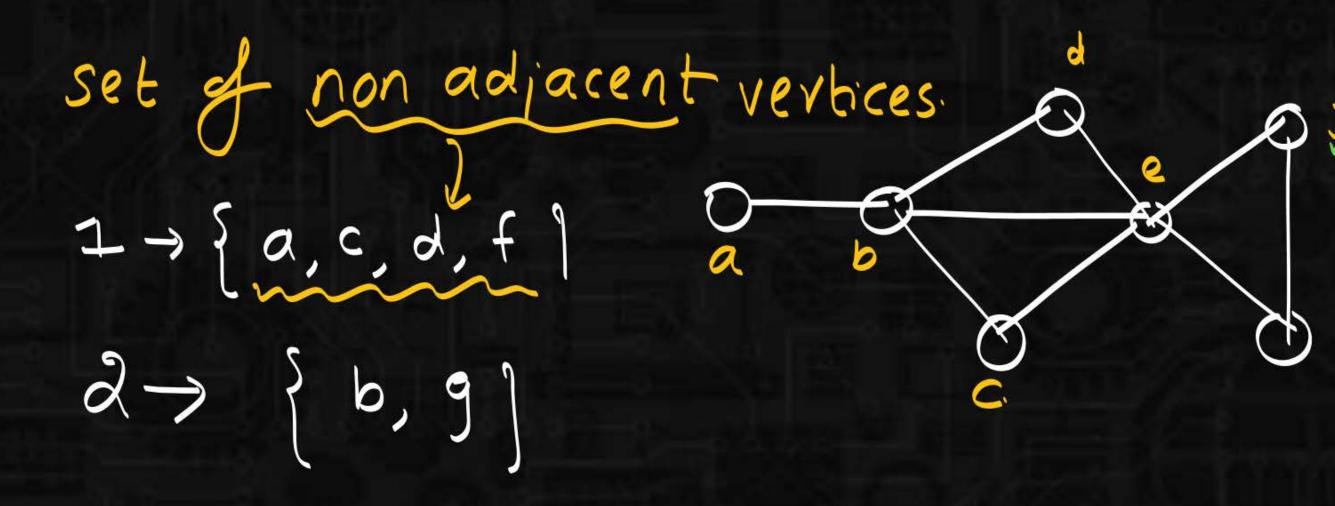
05 Domination number



non adjacent 1 -> { a, c, d, f } nis { b, 9] m 15. -> Chromatic no:

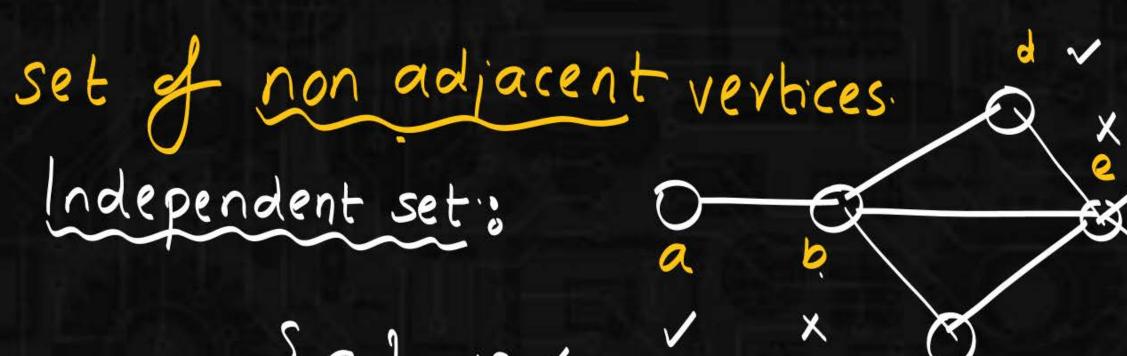
witing same clrretices in one set

will give diff partions. # of partions = X(G)



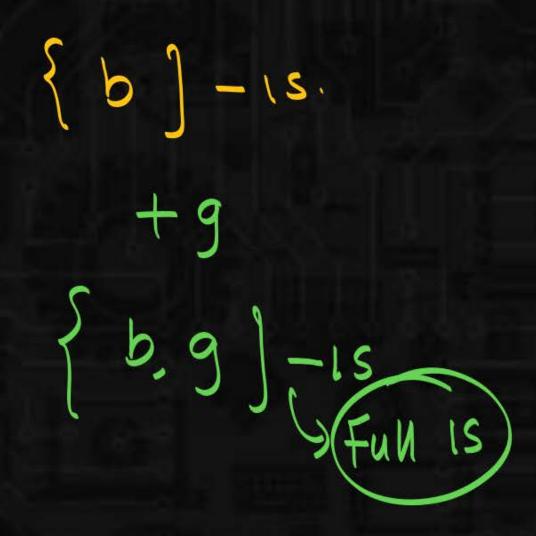


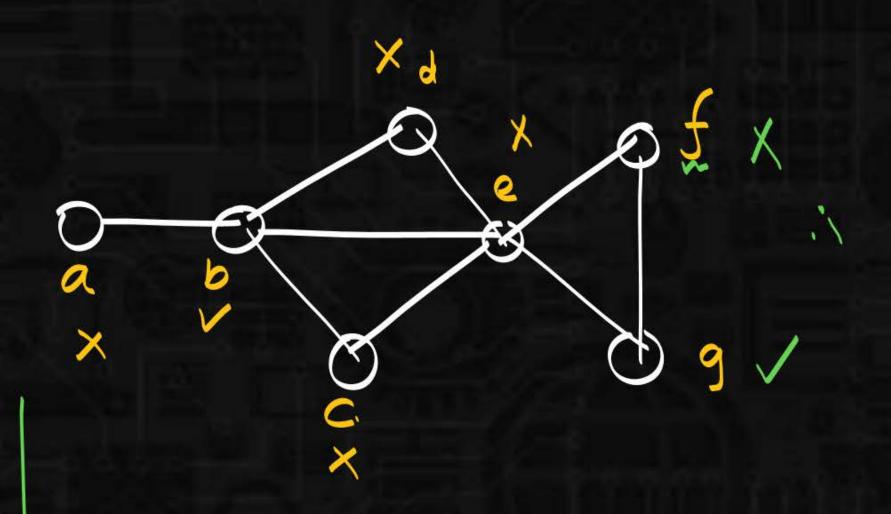




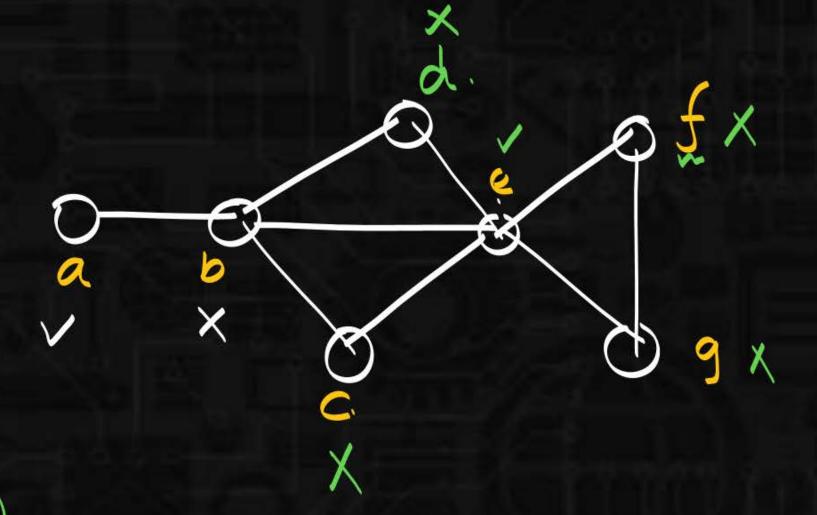
$$\{a, -15.7\}$$
 $\{a, c, -15.7\}$
 $\{a, c, d, -15.7\}$













manimal Independent set (m15)

Independent set such that we can not add new vertex into this

 $(mis) \begin{cases} a, c, d, f \end{cases} a b e e f$ $\{b, 9\}$ $\{b, f\}$ $\{a, e\}$

maximal + maximum.

(-) maximal is not related to size but property.

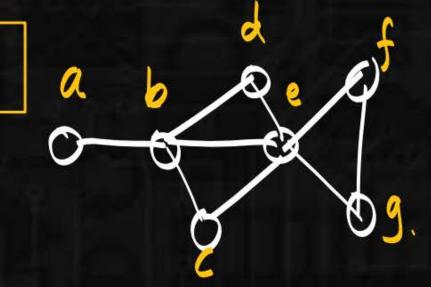
(Full)



manimal Independent set (m15)

Independent set such that we can not add new vertex into this $\beta(6) = 4$

(MIS) { a, c, d, f } { b, 9 } { b, f } { a, c, d, f } { b, f } { a, e, e }

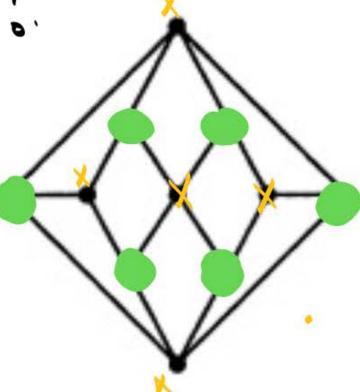


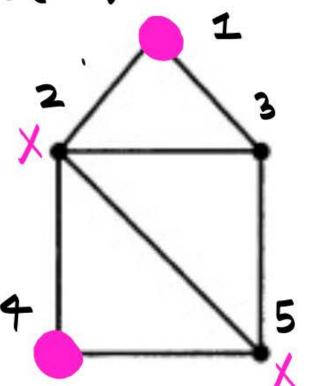
Independence no (B(G))
no of vertices present
in largest
maximal Independent

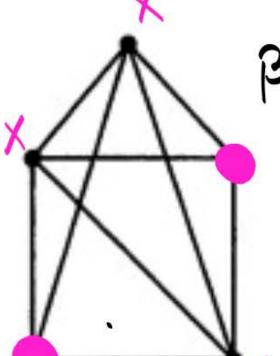
set.

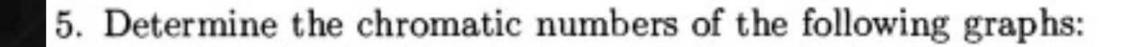
$$\chi(\mathfrak{G})=3$$

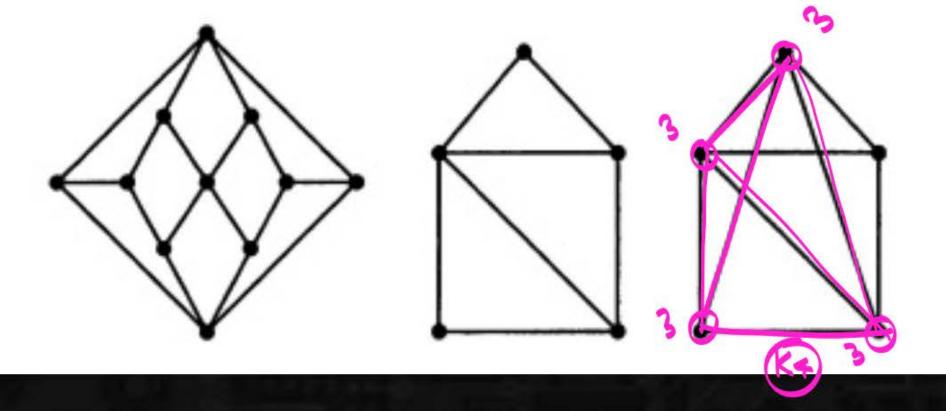
















$$B(Q) > \frac{\lambda(Q)}{\lambda(Q)}$$

$$\mathcal{N}(G) = 3. = partions.$$



3 partions = 3 Independent set 100 vertices.

(MIS)
$$p(G) \ge \frac{100}{3}$$

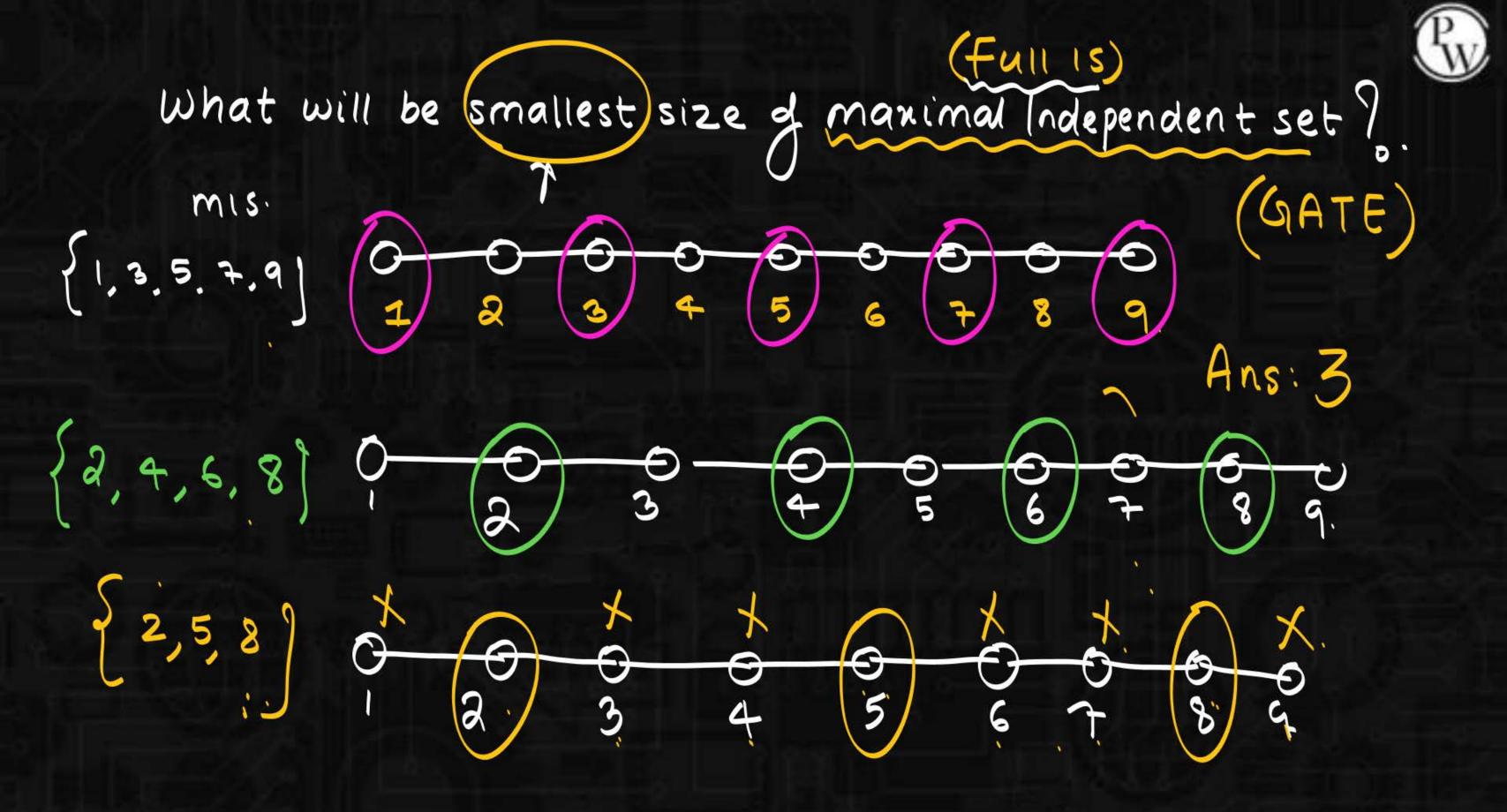
$$p(G) \ge \frac{100}{3}$$

$$p(G) \ge \frac{100}{3}$$
MIS.



$$\beta(6)=4$$
 -4
 -3
 -3

$$\beta(6) > \frac{10}{3}$$
 = no. of partiens





 $\begin{cases} 1, 3, 5, 7, 9 \\ -(1 \times 1, \beta) = 5 \end{cases}$ $\begin{cases} 2, 4, 4, 8 \end{cases} \rightarrow (1 \times 2, \beta) \qquad \text{Independent set}.$

manima Independ





