CS & IT ENGINEERING

Graph Theory

DPP 08

Discussion Notes

[MCQ]

1. Consider the following statements:

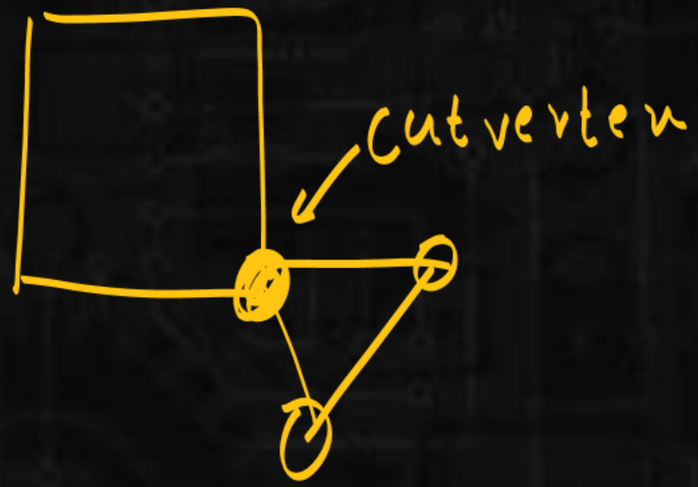
S_1: If a connected graph G has a cut vertex, then G has a cut edge. (false)

S_2: If a connected graph G has a cut edge then G has a cut vertex. (false)

Which of the following is true?

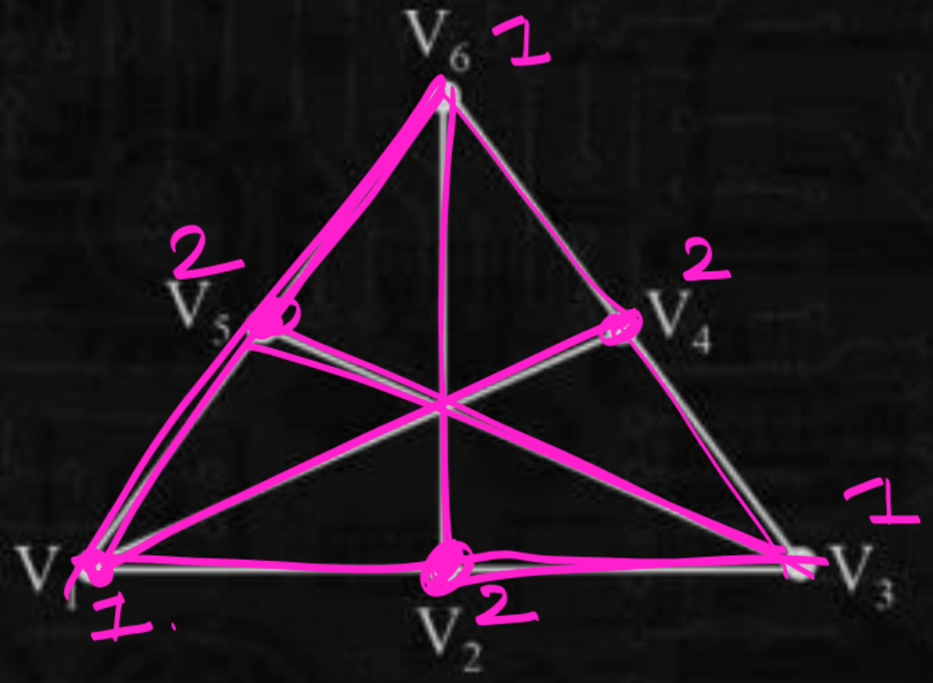
(a) S_1 only (b) S_2 only

(c) Both S_1 and S_2 (d) Neither S_1 nor S_2



[NAT]

2. For the graph shown below, the chromatic number is 2.



[NAT]

3. If G is a connected graph with 10 vertices and vertex connectivity is 3, then minimum number of edges necessary in G is 15

$K(G) = 3 \quad n = 10$

$15 \leq e$

$K(G) \leq \frac{2e}{n}$

$3 \leq \frac{2 \times e}{10}$

$30 \leq 2e$

$15 \leq e$

[MSQ]

4. which of the following options is/are correct?

(a) The chromatic number of a graph with at least 1 edge is at least 2. (T)

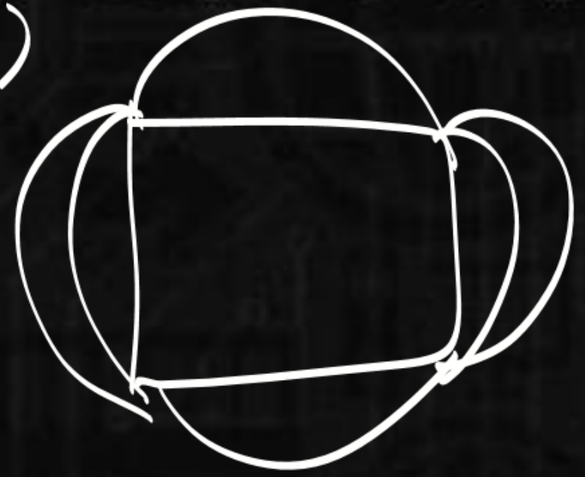
(b) A graph is null graph if and only if its chromatic number is 2. (F)

(c) For any graph, $K_G \leq 1 + \Delta(G) \leq n$, where (G) is maximum degree and K_G is chromatic number. (T)

(d) The chromatic number of a multi graph is equal to its equivalent simple graph chromatic number. (T)

$K(K_4) = 4$

$\Delta(G) = 3$.



[MCQ]

5. Consider the following statements:

false

S_1: A graph is bipartite graph if and only if its chromatic number is 2

S_2: The chromatic number of a tree is 2. Thus, every tree is bipartite graph.

Which of the following statement is False?

(a) S_1 only

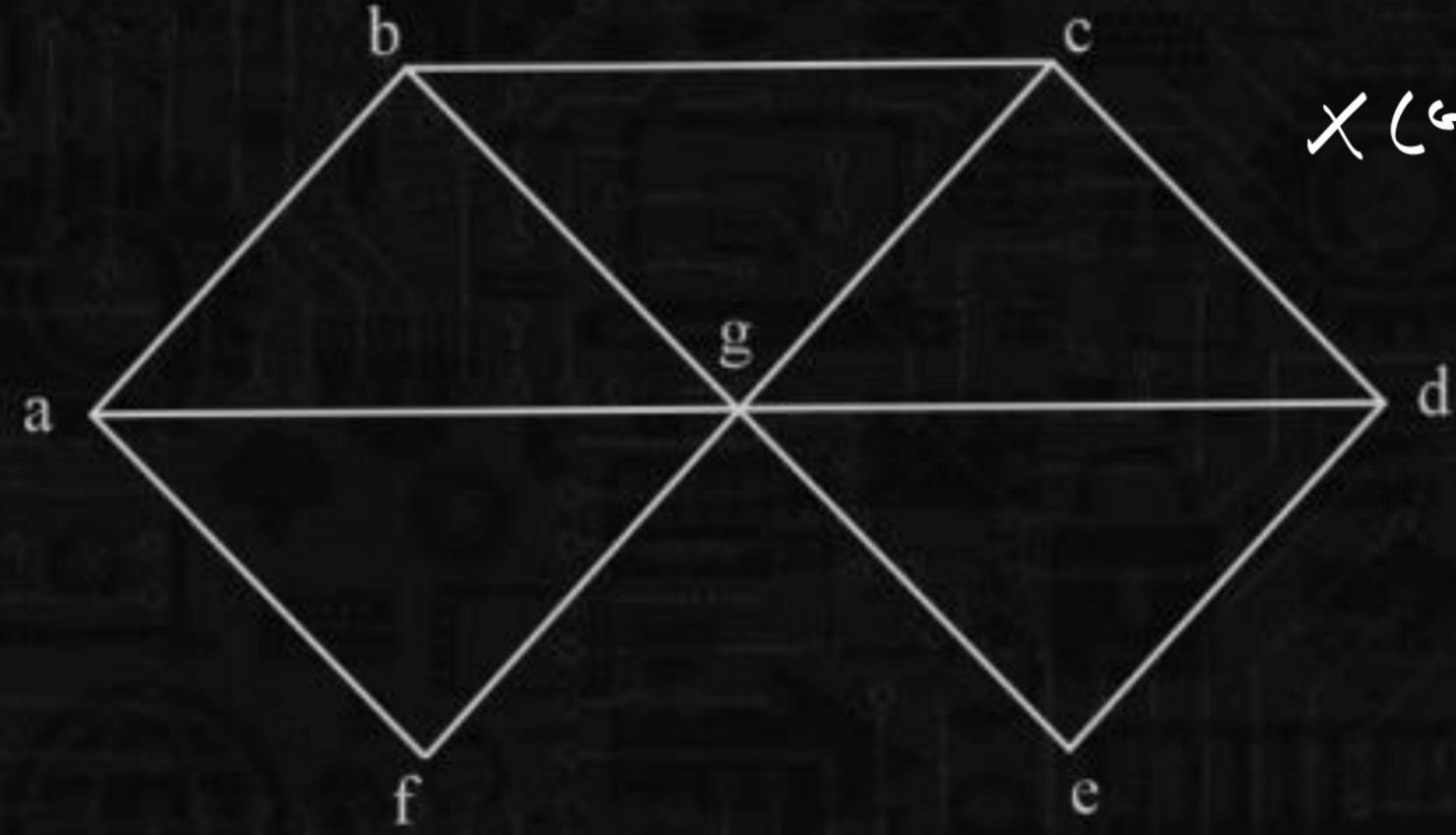
(b) S_2 only

(c) Both S_1 and S_2

(d) Neither S_1 nor S_2

[NAT]

6. What is the chromatic number of the given graph?



$\chi(G) = 3$


THANK YOU GW
SOLDIERS !