CS & IT ENGINEERING

Graph Theory

Discrete Mathematics

DPP 03 Discussion Notes

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01 Question

02 Discussion

Q.1

Consider a graph with order 7. The degree sequence of the graph is 4, 3, 3, 3, 2, 2, 1. Assume x is the number of edges and y is the degree sequence of the complement graph of the given graph. Find x and y?

[MCQ]

$n = 7$.

K_7	6	6	6	6	6	6	
$G \rightarrow$	4	3	3	3	2	2	1.
$\bar{G}$	2	3	3	3	4	4	5

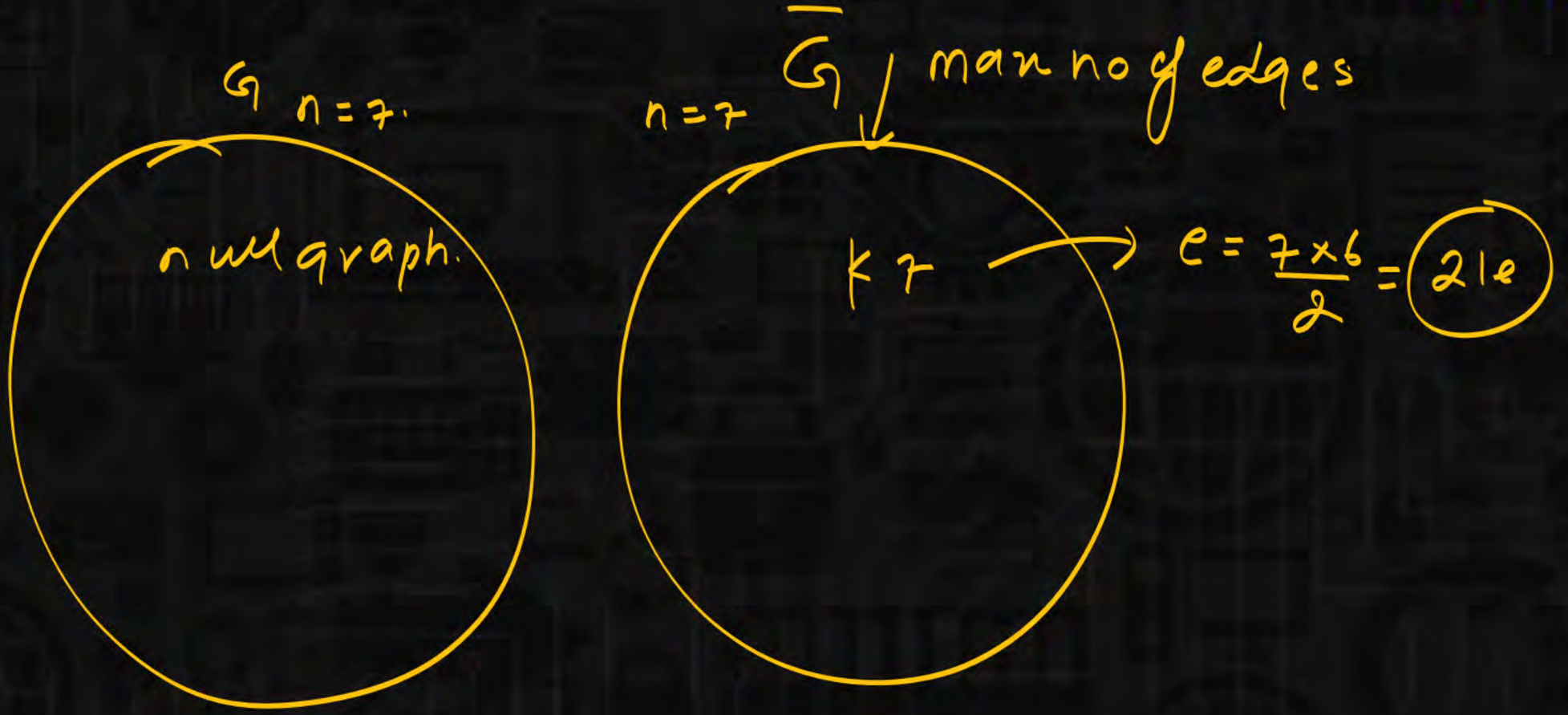
A. x = 10 and y = 5, 3, 3, 3, 2, 2, 2 ✗

B. x = 12 and y = 5, 4, 4, 3, 3, 3, 2 ✓

C. x = 14 and y = 5, 5, 4, 4, 4, 4, 2 ✗

D. x = 16 and y = 6, 5, 5, 5, 5, 3, 3 ✗

Q.2 What is the maximum number of edges in an complemented graph with 7 vertices? **[NAT]**



Q.3 Which of the following is the number of vertices that form the self-complementary graph? **[MSQ]**

$e = \frac{n(n-1)}{4}$

A. 13 ✓

B. 12 ✓

C. 15 ✗

D. 16 ✓

a, b, d.

Q.4

In a self-complementary graph G of size 18, then find the number of vertices in the graph G? $e = 18$

[NAT]

$$e = \frac{n(n-1)}{4}$$

$$18 = \frac{n(n-1)}{4}$$

$n = 9$

$$72 = n(n-1)$$

Q.5 Consider a graph with 4 vertices and 3 edges then which of the following statement is True? [MCQ]

S_1 : It may or may not be self-complementary graph. (T)

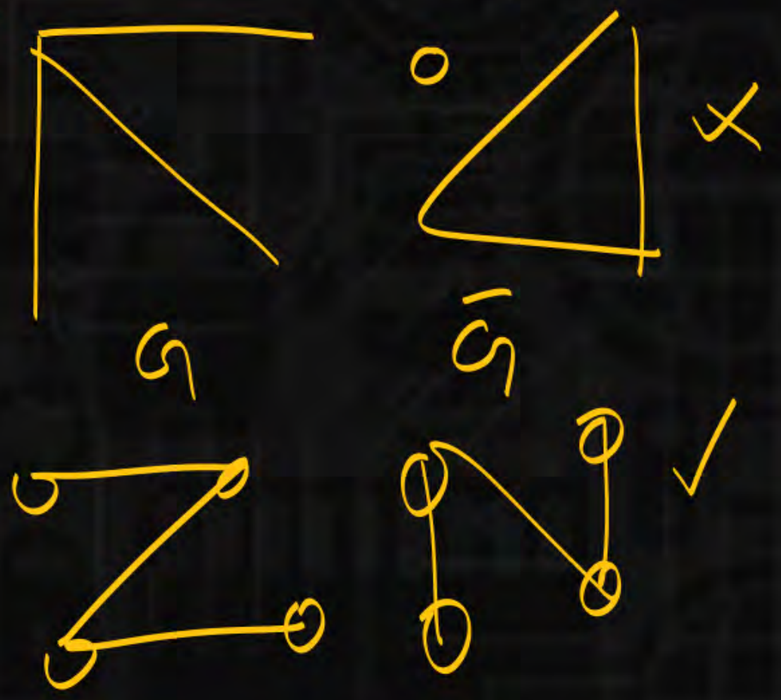
S_2 : It must be self–complementary graph. (false)

A. S_1 is True but S_2 is False ✓

B. S_1 is False but S_2 is True

C. Neither S_1 nor S_2 is True

D. None of these.

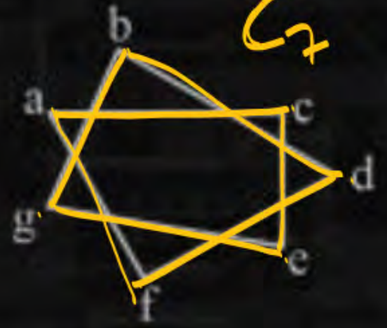


Q.6 Which of the following options is/are correct for isomorphic graphs? [MSQ]

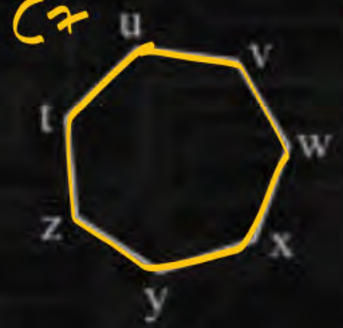
G_1:

G_2:

G_3:



G_4:



(b, c)

A. G_1 and G_2 are isomorphic graph.

B. G_3 and G_4 are isomorphic graph.

C. G_1 and G_2 are not isomorphic graph.

D. G_3 and G_4 are not isomorphic graph.

Q.7

Consider the following statements:

S_1 : If two graphs are self – complementary graph then they have equal number of vertices and edges. (T)

S_2 : If two graphs G_1 and G_2 have same number of edges, vertices and same degree sequence then they are self-complement graphs. (false)

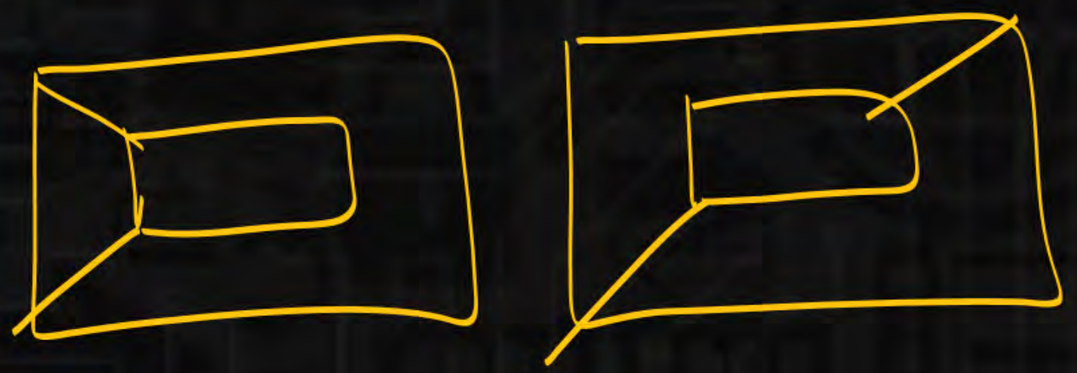
Which of the following option is true? [MCQ]

A. S_1 only ✓

B. S_2 only

C. Both S_1 and S_2

D. Neither S_1 nor S_2




THANK YOU GW
SOLDIERS !