CS & IT ENGINEERING

Graph Theory

Discrete Mathematics

DPP 04 Discussion notes

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01 Question

02 Discussion

Q.1 If a hypercube (Q_n) is given with edges 193, then the number of vertices will be [MCQ]

A. 6

B. 5

C. 7

D. None of these

$e = 193$

no. of edges $= n \cdot 2^{n-1}$

$193 = n \cdot 2^{n-1}$

$193 = \frac{n \cdot 2^n}{2}$

$386 = n \cdot 2^n$

$\rightarrow n = 5 \quad 5 \cdot 2^5$

$n = 6 \quad 6 \cdot 2^6$

$n = 7 \quad 7 \cdot 2^7$

Q.2

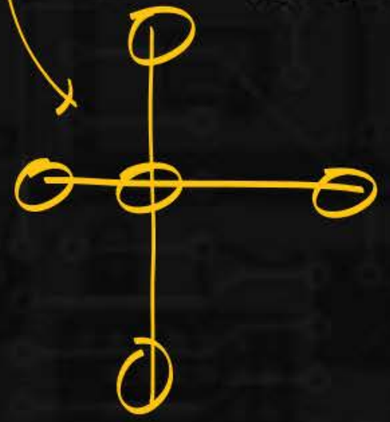
consider the following statements:

S_1: Every hypercube graph is a bipartite graph. (T)

S_2: Every bipartite graph is also a hypercube.

Which of the following options is True?

[MCQ]



A. S_1 only

B. S_2 only

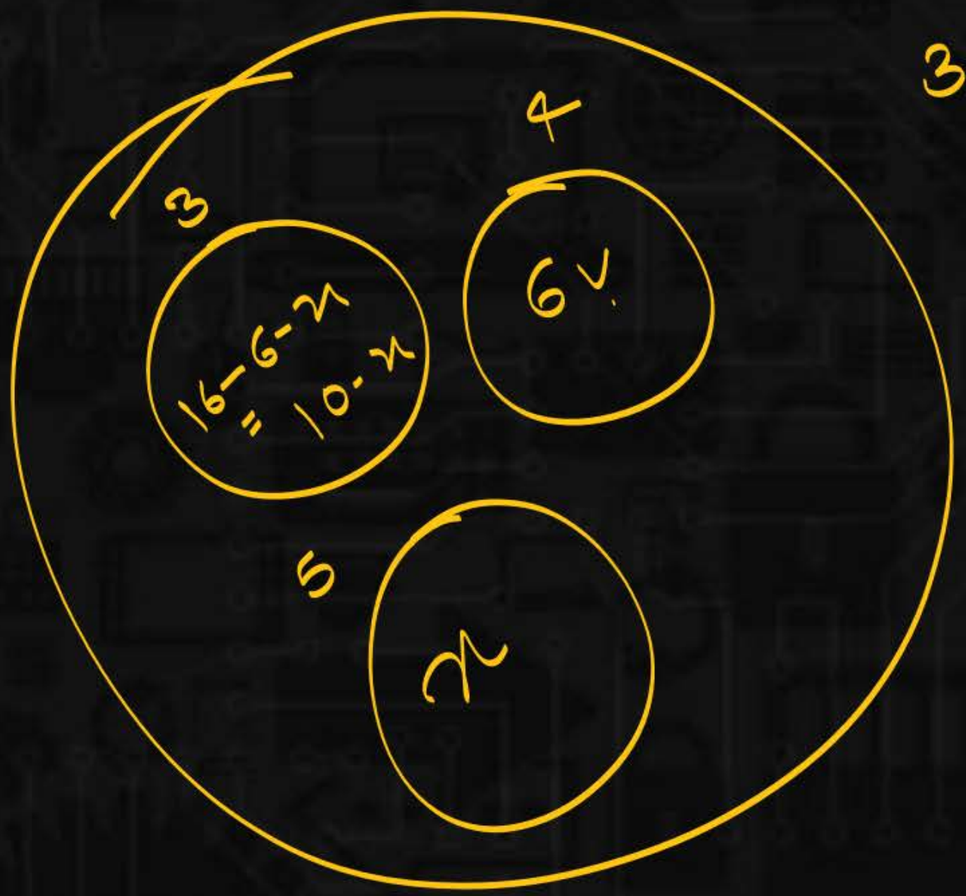
C. Both S_1 and S_2

D. Neither S_1 nor S_2

Q.3

A certain graph G has order 16 and size 29. The degree of each vertex of G is 3, 4 or 5. There are six vertices of degree 4. How many vertices of G having degree 5? **[NAT]**

$n = 16 \quad e = 29$



$$3(10-x) + 4\times 6 + 5x = 2\cdot 29$$

$$30 - 3x + 24 + 5x = 58$$

$$2x = 58 - 54$$

$$2x = 4$$

$$x = 2$$

Q.4 If the sequence x, 7, 7, 5, 5, 4, 3, 2 is graphical then what are the possible value of x $(0 \le x \le 4)$?

[MCQ]

A. 0

B. 2

C. 3

D. 1

0

1

2

3

4

x, 7, 7, 5, 5, 4, 3, 2

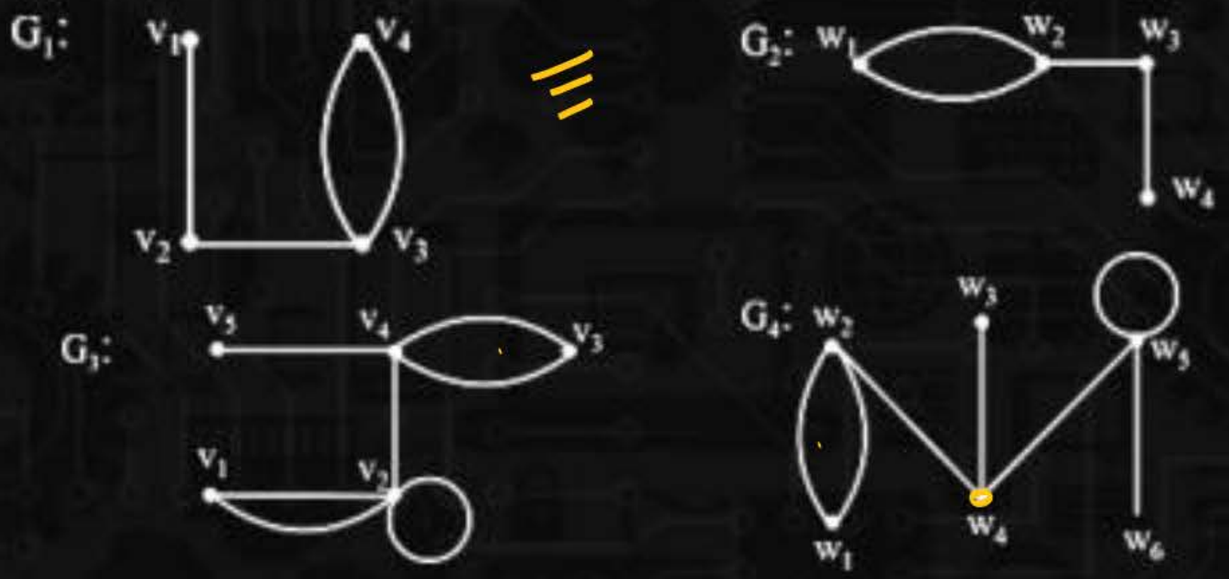
x = 1

7, 7, 5, 5, 4, 3, 2, 1

X

Q.5 Which of the following graphs are isomorphic graph?

[MSQ]



A. G_1 and G_2 are isomorphic ✓ (a, d)

B. G_3 and G_4 are isomorphic

C. G_1 and G_2 are not isomorphic

D. G_3 and G_4 are not isomorphic ✓


THANK YOU GW
SOLDIERS !