CS & IT ENGINEERING

Graph Theory

DPP 05

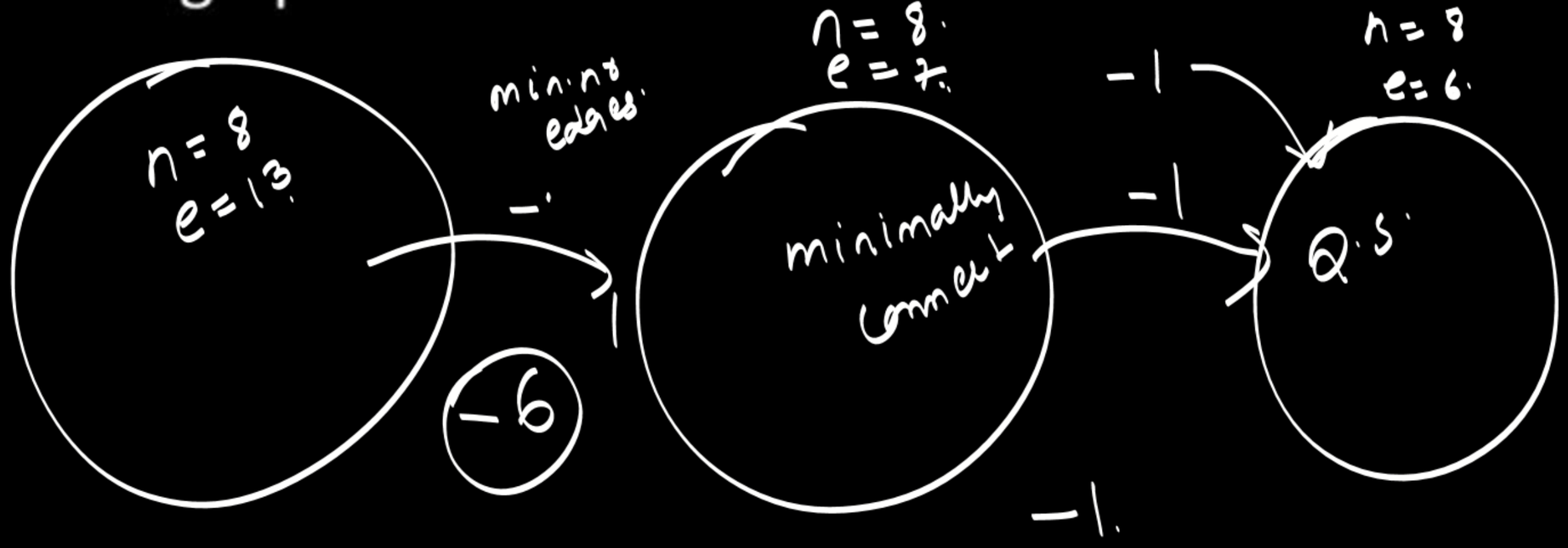
Discussion Notes

Q. 1 | NAT

13 − 7 = 6.

7.

Consider an undirected graph G, which is connected and have 8 vertices and 13 edges. Find the minimum number edges, whose deletion from graph G is always guarantee that it would be disconnected graph.



Q. 2 | MCQ

$e = 162$ $K_{m,n}$ $e(K_{m,n}) = m \times n$.

The order (Number of vertices) of a complete bipartite graph in which there are 162 edges and one of the partitions has twice the number of vertices as of other ____?

(a) 20
(b) 25
(c) 27 ✓
(d) 29

$K_{x,y}$ $x = 2y$

$e(K_{2y,y}) = 2y \times y$

$2y \times y = 162$

$2y^2 = 162$

$y^2 = 81$

$y = 9$

$K_{18,9}$: $18 + 9 = 27$

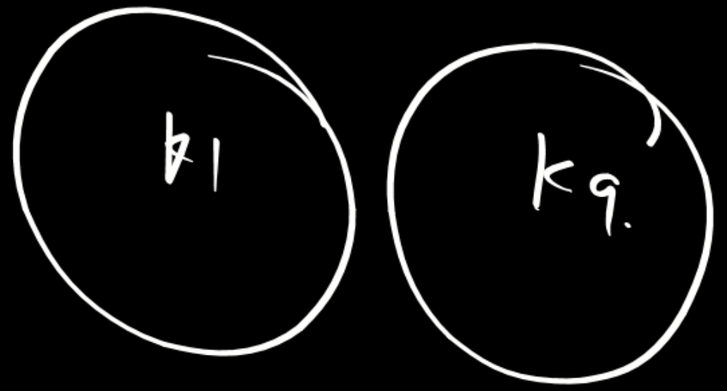
Q. 3 | NAT

Consider a simple graph of 10 vertices. If the graph is disconnected, then the maximum number of edges, it can have is 36 ?

2 is + maximum no of edges → 2 components.

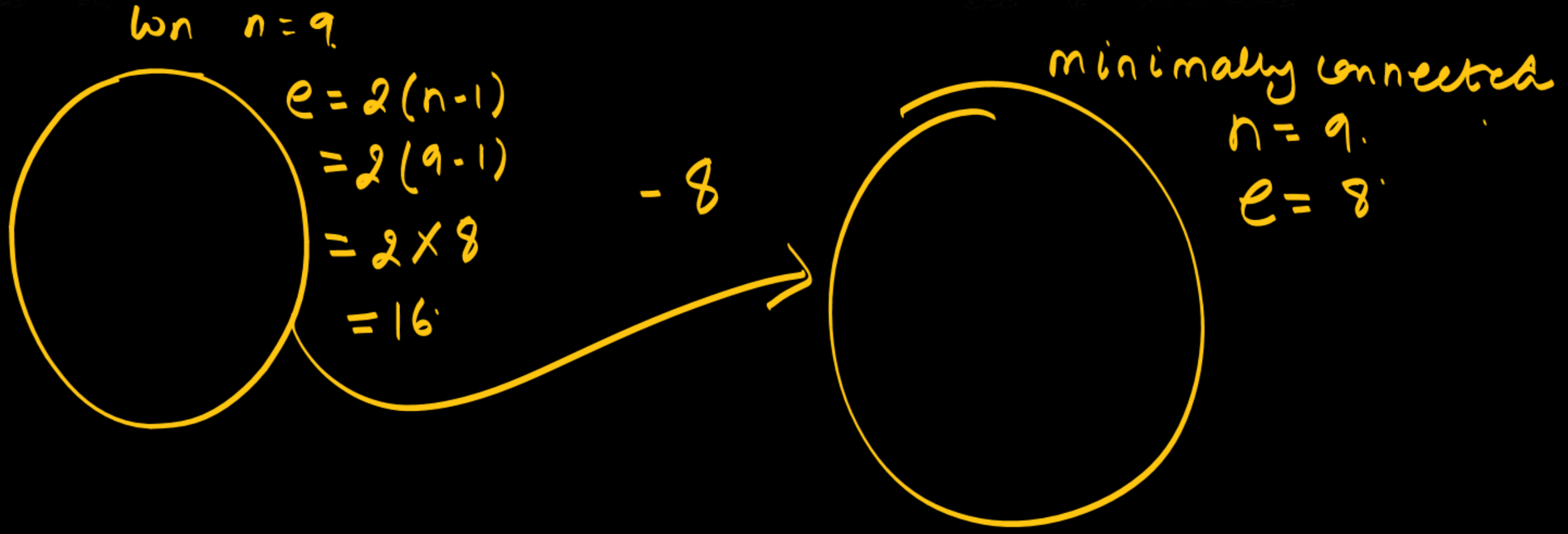
$e = \frac{9 \times 8}{2}$

$= 36$



Q. 4 | MSQ

Consider a wheel graph (w_n) of 9 vertices. Find the number of edges to be deleted from the above graph, such that the resultant graph must be minimal connected graph ___8___?



Q. 5 | MCQ

If G is a simple disconnected graph with 16 vertices and 3 components, then maximum number of edges possible in G is _____?

(a) 90
(b) 91
(c) 92
(d) 93

13×7

$(13+3) \times 7$

$= 70 + 21 = 91$

$n = 16 \quad k = 3$

$e = \frac{(n-k)(n-k+1)}{2}$

$= \frac{(16-3)(16-3+1)}{2}$

$= \frac{13 \cdot 14}{2} \times 7$

Q. 6 | MCQ

What is the maximum number of edges present in a disconnected graph n > 2 vertices?

(a) $nC_2 - 1$

(b) $n - 2$

(c) $(n-1)C_2$

(d) $(n-2)C_2$

Q. 7 | MCQ

Which of the following statements is/are true?

unique.

S1: A graph G(V, E) is called tree if there is an exactly one path between every 2 vertices.

Connected + does not contains cycle.

S2: A graph G(V, E) is tree iff it is connected, and it does not contain cycle.

(a) S1 only
(b) S2 only
(c) Both S1 and S2
(d) None of these.


THANK YOU GW
SOLDIERS !