CS & IT ENGINEERING

Discrete Mathematics

DPP 01 Graph Theory

Discussion Notes

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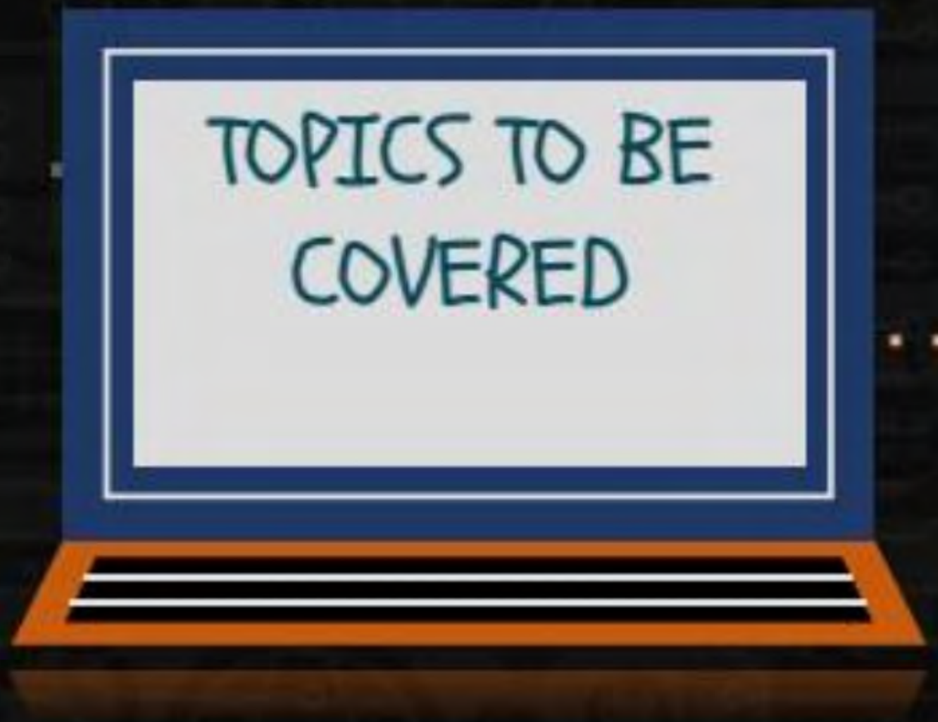


01 Question

02 Discussion

Q.1

Which of the following is a graphic sequence?

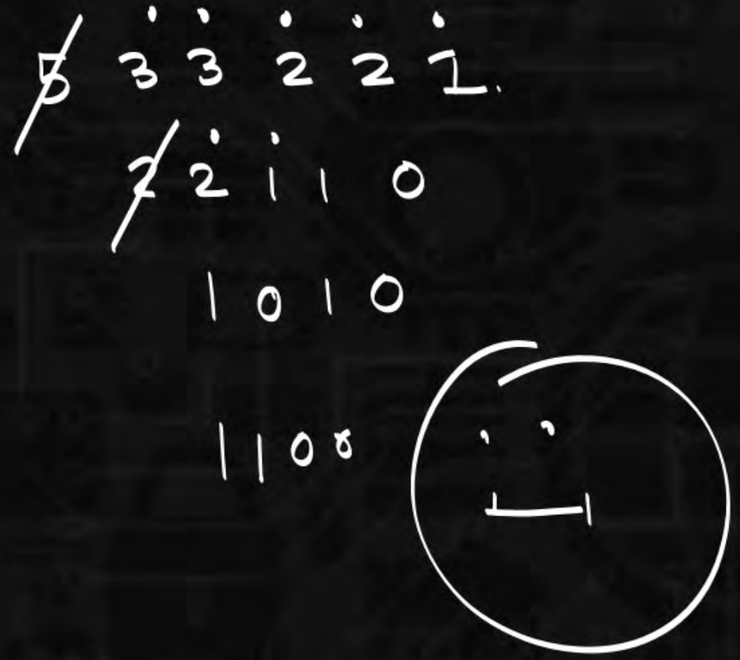
[MCQ]

A. 5, 3, 3, 2, 2, 1 ✓

B. 2, 1, 1, 1, 1, 1 ×

C. 6, 5, 4, 3, 2, 1 ×

D. 5, 5, 2, 2, 1, 1 ×



Q.2

Find the number of edges of an undirected graph having degree sequence 2, 4, 4, 3, 4, 1?

[NAT]

$$\sum d(v_i) = 2e.$$

$$18 = 2e$$

$$e = 9$$

Q.3

Let δ denote the minimum degree of any vertices of a given graph and let Δ denote the maximum degree of any vertex in the graph. Suppose a certain graph has 8 vertices and that $\delta = 4$ and $\Delta = 6$, then this graph must contains at least 16 edges. **[NAT]**

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

$$4 \leq \frac{2e}{n} \leq 6$$

$$4 \leq \frac{2e}{8} \leq 6$$

$$4 \leq \frac{e}{4} \leq 6$$

$$16 \leq e \leq 24$$

Q.4

There are 24 routers in Physics Wallah. Find the number of cable required to connect them such that each router is connected with exactly 6 others.

[NAT]

$$\sum d(v_i) = 2e$$

$$24 \times 6 = 2e$$

$$72 = e$$

Q.5 What is the maximum value of minimum degree (δ) with a graph of order 10 and size 16? **[MCQ]**

$n = 10$ $e = 16$.

A. 4

B. 3 ✓

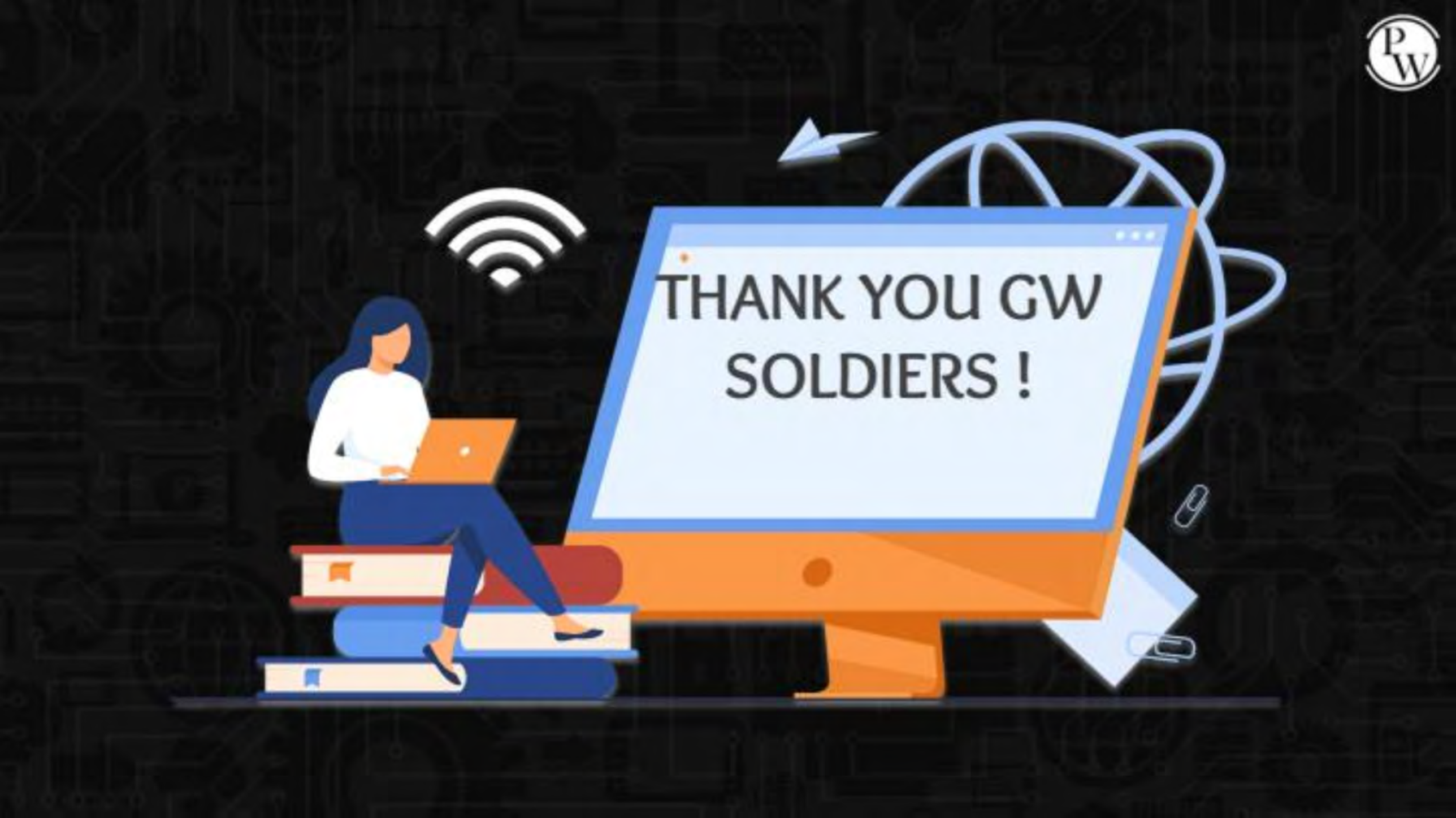
C. 2

D. 1

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

$$\leq \frac{2 \times 16}{10}$$

$$3 \leq 3.2.$$


THANK YOU GW
SOLDIERS !