

# CS & IT ENGINEERING

Graph Theory

DPP 01
Discussion Notes

## [MCQ]



### 1. Which of the following is a graphic sequence?

$$n=6$$

$$n-1, n-1 \dots = 1$$

$$not quaphical$$

d) 
$$552217$$
 c)  $654321$  a)  $533221$   
 $n=6$  not possible  $72100$ 

#### [NAT]



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

$$\sum d(vi) = 2e$$
 $2 + 4 + 4 + 3 + 4 + 1 = 2e$ 
 $3 + 8 + 8 = 2e$ 
 $19 = 2e$ 

## [NAT]



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 δ = 4 and Δ = 6, then this graph must contains at least 6 edges.

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

$$24 \leq \frac{8e}{8}$$

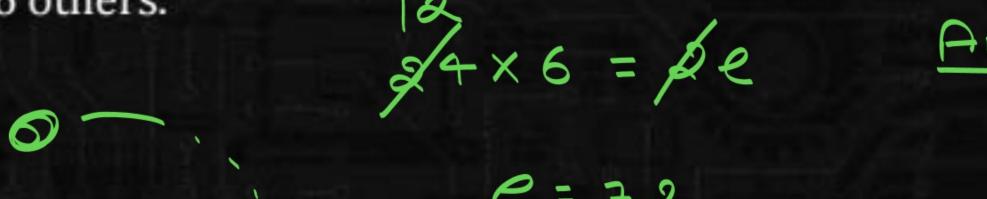
$$2x8 \leq e$$

## [NAT]

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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.



Ans: 72.

## [MCQ]



- 5. What is the maximum value of minimum degree ( $\delta$ ) with a graph of order 10 and size 16?
  - (a) 4
  - (b) 3
  - (c) 2
  - (d) 1

$$n = 10$$
  $e = 16$ .

 $S(s) \le \frac{2e}{n}$ 
 $S(s) \le \frac{2x}{10}$ 
 $S(s) \le \frac{2x}{10}$ 
 $S(s) \le \frac{3x}{10}$ 
 $S(s) \le \frac{3x}{2}$ 



