



Villa Marie Degree College for Women
(Affiliated to Osmania University)
#6-3-1089, Raj Bhavan Road, Somajiguda Hyderabad-500082
(An ISO 9001:2015 Certified Institution)



DEPARTMENT OF MATHEMATICS AND STATISTICS

Organises an Extension Guest Lecture

On

BASICS OF GRAPH THEORY AND APPLICATIONS

Date : 18 October 2022

Venue: Dr. APJ Abdul Kalam Auditorium

Target Audience: BSc I, II, III year

Timings: 10:00 am to 11:00 am



Dr. Nirmala Xavier
PG Dean, Head Department of Mathematics
St. Ann's College for Women,
Hyderabad





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The number of vertices of odd degree in a graph is always even.

$\deg(a)=3, \deg(b)=2, \deg(c)=3, \deg(d)=2, \deg(e)=2$
 Sum of the degrees of all vertices is equal to $2|E|=14$

$\sum_{v \in V} \deg(v) = 2|E|$



If v_1, v_2, \dots, v_n is the vertex set of non-directed graph G then
 $\sum_{i=1}^n \deg(v_i) = 2|E|$
 If G is a directed graph, then $\sum_{i=1}^n \deg^+(v_i) = \sum_{i=1}^n \deg^-(v_i) = |E|$



$\deg^+(a) = \deg^-(a) = 2$
 $\deg^+(b) = 1, \deg^-(b) = 2$
 $\deg^+(c) = 2, \deg^-(c) = 0$
 $\deg^+(d) = 2, \deg^-(d) = 1$
 $\sum_{i=1}^4 \deg^+(v_i) = \sum_{i=1}^4 \deg^-(v_i) = |E|$




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DEPARTMENT OF MATHEMATICS
 B.TECH

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Following pairs of polyhedra are (isomorphic)

	
$V(G) = 6$ $E(G) = 9$	Number of vertices of $G' = 6$ Number of edges of $G' = 9$
Number of vertices of $G = 6$ Number of edges of $G = 9$	Number of vertices of $G' = 6$ Number of edges of $G' = 9$
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Following pairs of polyhedra are (isomorphic)

$ V(G) = 6$	Number of vertices of $G' = 6$
$ E(G) = 9$	Number of edges of $G' = 9$
Number of vertices of $G =$ number of vertices of G'	
Number of edges of $G =$ number of edges of G'	



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