Printing Page(s) : 1 **Paper Code :DCS-118**

Roll No. | | | | | | | | | | |

PGDCA-6, MCA-6, M.Sc.(CA)-6
1st Year Examination, Calendar Batch 2017
Mathematics & Graph Theory

Time : 3 Hours] *[Max. Marks : 100*

***Note**. Attempt any **five** questions. Each questions carry equal marks.*

Q.1 Define and analyze the directed Hamiltonian circuit and semi-Hamiltonian circuit in a digraph.

Q.2 Explain this Theorem A simple graph with n vertices and k components can have at most (n-k) (n-k +1)/2 edges.

Q.3 'Every binary tree has an odd number of vertices' explain .

Q.4 Show that if a bipartite graph has any circuit, they all be of even lengths.

Q.5 Explain the matrices and its type with example?

Q.6 In how many ways can 6 persons be seated at a round table so that all shall not have the same neighbours in any two arrangements.

Q.7 Prove that a connected graph is unicursal if and only if it has exactly two vertices of odd degree.

Q.8 Describe the Properties of Binary Relations with example?