**EIC-501** 

# UNIT-1 (Lecture-7)

## **Signal Flow Graphs**

#### **CONTROL SYSTEM-I**

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# **Signal flow graphs**



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## Mason's Rule

Mason's gain rule is as follows: the transfer function of a system with signal-input, signal-output flow graphs is

$$T(s) = \frac{p_1 \Delta_1 + p_2 \Delta_2 + p_3 \Delta_3 + \cdots}{\Delta}$$

 $\Delta$ =1-(sum of all loop gains)+(sum of products of gains of all combinations if 2 nontouching loops)- (sum of products of gains of all combinations if 3 nontouching loops)+...

A path is any succession of branches, from input to output, in the direction of the arrows, that does not pass any node more than once.

A loop is any closed succession of branches in the direction of the arrows that does not pass any node more than once.

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