ASSIGNMENT 1

**DEPT OF ECE , MCET**

V SEM ECE 2018-19(I SEM) ASSIGNMENT I (ACS- UNIT 1 & II)

1. Differentiate OPEN LOOP & CLOSED LOOP systems, Give the advantages of CLOSED LOOP systems
2. What are the characteristics of NEGETIVE FEEDBACK
3. State & Explain   MASON'S GAIN FORMULA
4. What is BLOCK DIAGRAM, give any 3 REDUCTION TECHNIQUES used in Block diagram reduction
5. Define Node, Branch, Source & Sink WRT SFG
6. Determine the overall transfer function for the following block diagram
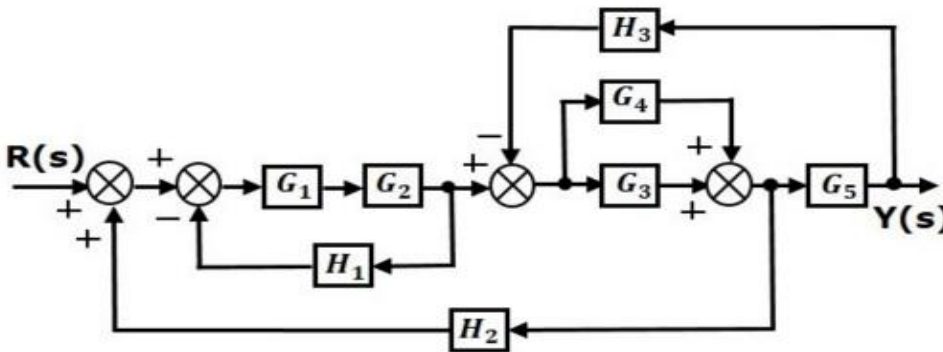
7. Convert the above block diagram to SFG and find   Transfer function using MASON'S GAIN formula.

8. Define all time domain specifications for second order system.

9. Define the ORDER   and TYPE of a system

10. Find the static error coefficients for a unity feedback system, $G(S) = \frac{20(S+3)}{S(S+5)(S+6)}$

11. A unity feedback system is characterized by the open loop transfer function $G(S) = \frac{1}{S(0.5S+2)(0.2S+1)}$

Determine the steady-state errors for unit-step, unit-ramp, unit-parabolic inputs.

12. Using Routh Criterion, design the stability of the system represented by the characteristic equation,
(1). $S^4+8S^3+18S^2+16S+5=0$.   (2). $S^4+2S^3+18S^2+4S+3=0$.

13. Given characteristic equation as $2S^3+3S^2+2S+K=0$. Find the condition for K for the system to be stable.

14. Construct the Root Locus for the following Open Loop transfer Function.,

(1). $G(S) = \frac{K}{S(S+2)(S+4)}$, (2). $G(S) = \frac{K}{S(S+4)(S^2+4S+20)}$

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