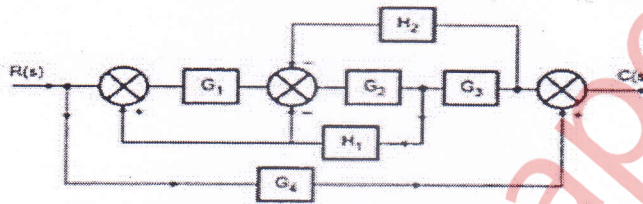


Duration: 3hrs

Marks:80

- N.B.: (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1 Attempt any **FOUR** [20]
 a Explain GPIB and its working. [5]
 b Compare steady state analysis of standard test inputs. [5]
 c Classify time and frequency domain. [5]
 d Differentiate sensors and transducers. [5]
 e What are the types of data logger and give its applications [5]
 f Explain Mod bus in detail [5]
- 2 a For the given block diagram obtain equivalent T.F. by block diagram reduction [10]



- b Draw the Nyquist Plot and comment on stability [10]
 $G(S)H(S) = \frac{K}{s(s+4)(s+8)}$
- 3 a Find the Steady state error for various types of standard test inputs for a unity feedback system with $G(s) = \frac{K}{s(s+5)(s+10)}$, (a) $K=10$ and (b) $K=200$ [10]
 b Find the range of K for Stability by Routh Criterion for a unity feedback system . Find K_{mar} and ω_{mar} . [10]
 $G(S) = \frac{K}{s(s+2)(s+4)(s+6)}$
- 4 A Draw the Root Locus and comment on system stability. $G(s)H(s) = \frac{K(s+8)}{s(s+2)}$. [10]
 b For the system having the open loop transfer function draw the bode plot and determine the stability [10]
 $G(S)H(S) = \frac{100(s+3)}{s(s+1)(s+5)}$
- 5 a Analyze the construction and working of displacement transducers. Also, discuss its applications. [10]
 b Compare the working of Landline Telemetry and Radio Telemetry [5]
- 6 Write Short notes [20]
 a Field Bus [5]
 b SCADA [5]
 c Thermocouple [5]
 d Fibre Optic Communication [5]

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