B.Tech. SEM -IV Electronics 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: INSTRUMENTATION AND CONTROL SYSTEM

Day: Tuesday | Time: 10.00 AM TO 01.00 PM

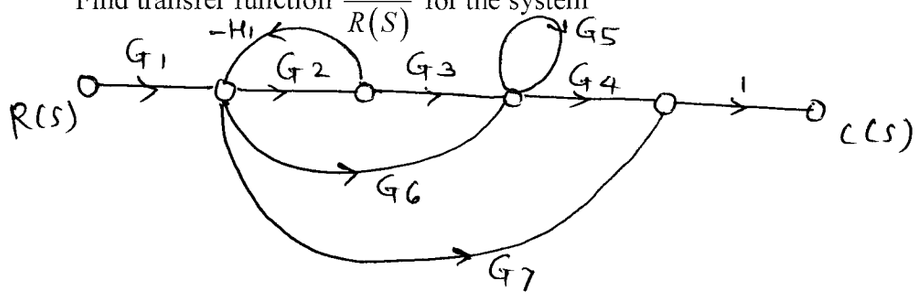
Date: 28/05/2019 | Max. Marks: 60

S-2019-2614

N.B:

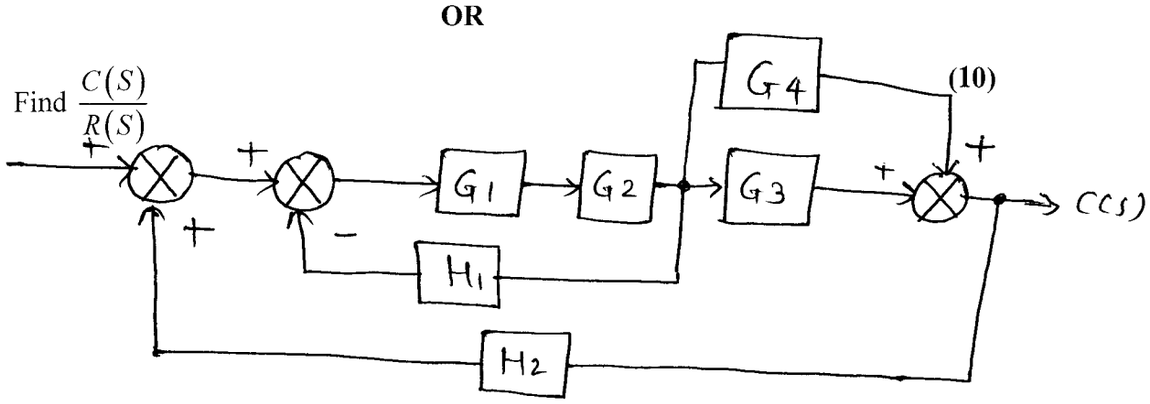
1) All questions are **COMUPLSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q.1 Find transfer function $\frac{C(S)}{R(S)}$ for the system **(10)**



OR

Q.1 Find $\frac{C(S)}{R(S)}$ **(10)**



Q.2 **a)** Describe construction and working of tacho generator. **(05)**

b) Derive expression for the "Gauge Factor" in strain gauge. **(05)**

OR

Q.2 A capacitive transducer with its plate seperation of 0.05mm under static conditions has a capacitance of 5×10^{-2}F. Determine the displacement which cause a change of capacitance of 0.07×10^{-2}F. **(10)**

Q.3 Derive expression of steady state error (ess) for type-0, type-1 and type-2 system with various inputs (step, ramp, parabolic). **(10)**

OR

Q.3 If $G(s)\,F(s) = \frac{20}{s(1+4s)(1+s)}$ **(10)**

Then determine K_p, K_v, K_a and steady state error if input $r(t) = 2 + 4t + \frac{t^2}{2}$.

P.T.O.

Q.4 Sketch the root locus for the system having $G(s)H(S) = \frac{K}{s(s+5)(s+10)}$ **(10)**

Comment on stability.

OR

Q.4 Determine the stability of system whose characteristic equation is given by $2s^5 + s^4 + 6s^3 + s + 1 = 0$. **(10)**

Q.5 Explain effect of poles and zero's on system stability. **(10)**

OR

Q.5 State and explain nyquist stability criteria. **(10)**

Q.6 Explain working of on-off controller also define neutral zone. **(10)**

OR

Q.6 Describe PI with advantages. **(10)**

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