B.Tech. SEM -IV Electronics 2014 Course (CBCS) : WINTER - 2018

SUBJECT: INSTRUMENTATION AND CONTROL SYSTEM

Day: Thursday
Date: 15/11/2018

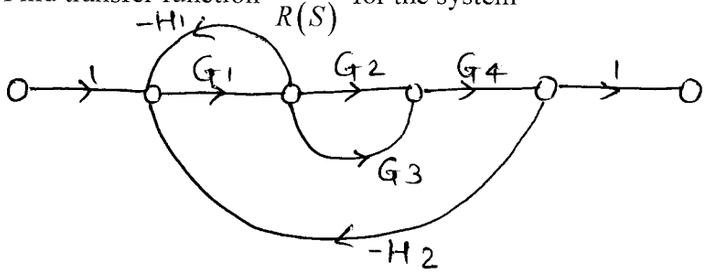
W-2018-2349

Time: 02.30 PM TO 05.30 PM
Max. Marks: 60

N.B:

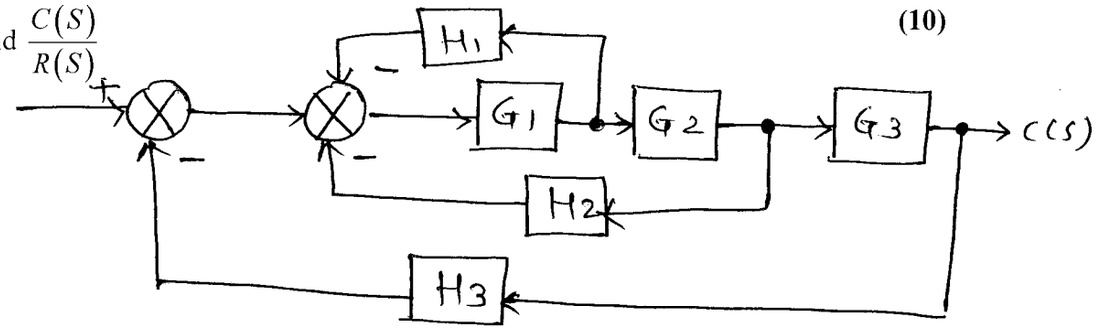
1) All questions are **COMUPLSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

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)** What is residual voltage? Draw and label construction of LVDT in details. **(05)**
b) Describe construction and working of Electromagnetic flow meter. **(05)**

OR

Q.2 **a)** Describe construction and working of tachogenerator. **(05)**
b) Derive expression for the "Gauge Factor" in strain gauge. **(05)**

Q.3 A unity feedback system has $G(s) = \frac{40(s+2)}{s(s+1)(s+4)}$ **(10)**

Determine:
i) Type of system
ii) All error coefficient and ramp input with magnitude 4.

OR

Q.3 For unity feedback system with $G(s) = \frac{500}{s(s+15)}$ **(10)**

Calculate W_n, Wd , ξ, T_d, T_p, and % M_p, T_s.

P.T.O.

Q.4 For unity feedback system $G(s) = \dfrac{K}{s(s+4)(s+2)}$ **(10)**

Sketch rough nature of root locus showing all details on it. 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 Define G.M. P.M. Wgc, Wpc. Illustrate and draw all above with appropriate example. **(10)**

OR

Q.5 Explain nyquist stability criteria and draw bode plot of a system with open loop transfer function **(10)**

$G(s)H(s) = \dfrac{K(s+3)}{S(s+1)(s+2)}$ Comment on stability.

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

OR

Q.6 Describe PLC in details. Also write its applications. **(10)**

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