

B.Tech. SEM -V Bio Medical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT: INSTRUMENTATION AND CONTROL SYSTEM

Day: Thursday
 Date: 09/05/2019

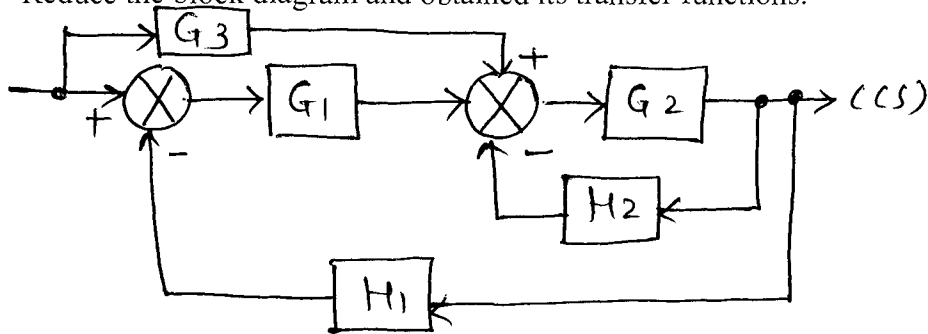
S-2019-2695

Time: 10.00 AM TO 01.00 PM
 Max. Marks: 60

N.B:

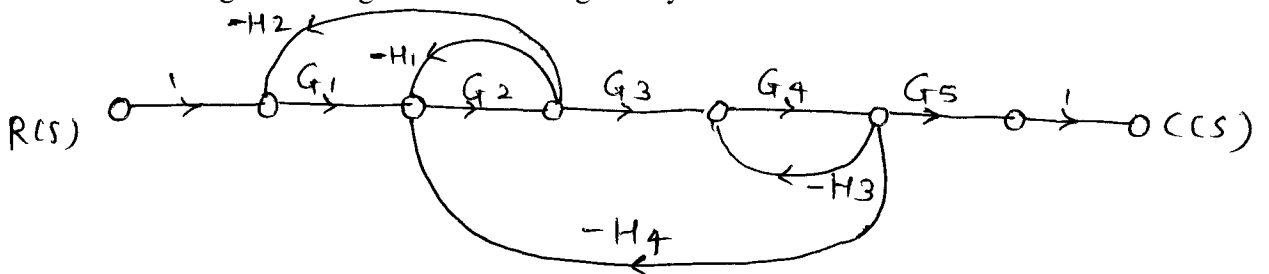
- 1) All questions are **COMUPLSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 Reduce the block diagram and obtained its transfer functions. **(10)**



OR

Q.1 Differentiate between open loop and closed loop system. Find transfer function using mason's gain formula for given system. **(10)**



Q.2 List different types of transducer. Write construction and working of LVDT also give its applications. **(10)**

OR

Q.2 Describe construction and working of tacho generator. **(10)**

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 error of ramp input with magnitude 4.

OR

Q.3 Define "steady state error (ess)" Also derive expression for steady state error ess with step input, ramp input and parabolic input. **(10)**

P.T.O.

- Q.4** For a system having $G(s)H(S) = \frac{K(1+s)^2}{s^3}$ Find range of 'K' for system to be stable. **(10)**

OR

- Q.4** Sketch complete root locus of system having $G(s)H(S) = \frac{K}{s(s+1)(s+2)(s+3)}$ **(10)**

- Q.5** A unity feedback control system has $G(s) = \frac{80}{s(s+2)(s+20)}$ **(10)**
Draw the asymptotic bode plot. Determine G.M., P.M. Wgc, Wpc comment on stability.

OR

- Q.5** Draw polar plot for a system given by $G(s)H(S) = \frac{10}{s(1+0.1s)(1+0.01s)}$ **(10)**
Find whether the system is stable if so find GM and PM.

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

OR

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

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