TE/Insem/APR - 15
T.E. (Electrical)
CONTROL SYSTEM - I
(2012 Pattern) (Semester - II)

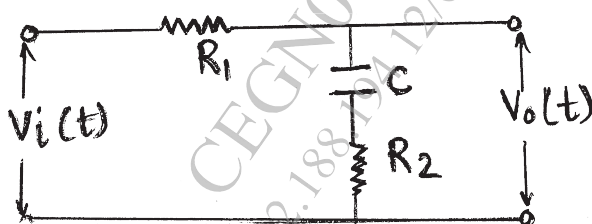*Time : 1 Hour]*   *[Max. Marks : 30*

Instructions to the candidates :

   1)   *Answer Q1 or Q2, Q3 or Q4 & Q5 or Q6.*

   2)   *Neat diagrams must be drawn wherever necessary.*

   3)   *Figures to the right indicate full marks.*

Q1) a)   Compare : Feedback & Feed forward control system.   **[4]**

     b)   Determine the transfer function of electric network.   **[6]**

OR

Q2) a)   Explain general classification of control system. What are the advantages and disadvantages of closed loop system over open loop system.   **[4]**

     b)   Obtain transfer function of block diagram.   **[6]**
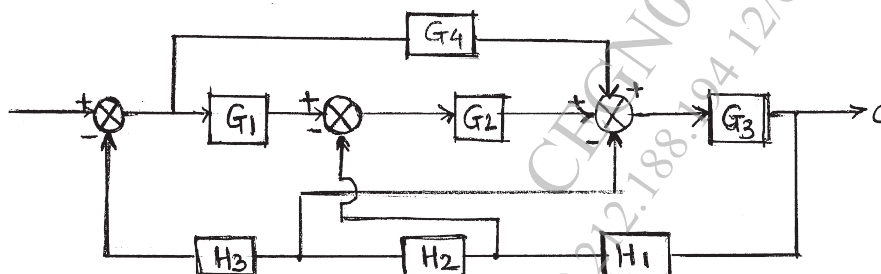
P.T.O.

Q3) a) Write a short note on [6]

    i)   Lead Compensator

    ii)   AC Tachometer

   b) Define transfer function. State its advantages and disadvantages. [4]

OR

Q4) a) Write a short note on DC servomotor. Derive its transfer function. [6]

   b) Explain force current analogy. [4]

Q5) a) Define steady state error and position, velocity and acceleration error constants and corresponding steady error. [4]

   b) For the unity feedback system having $G(s) = \dfrac{K}{s(Ts+2)}$, find the factor by which the gain K should be multiplied to increase the damping ratio from 0.15 to 0.6. [6]

OR

Q6) a) Give definition and write an expression for rise time, peak time, peak overshoot, settling time. [4]

   b) Find type, order, steady state error of the system, having unity feedback system of $G(s) = \dfrac{K(s+4)}{s(s^3+8s^2+4)}$ when input is $\dfrac{At^2}{2}$. [6]

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