

Total No. of Questions : 6]
P488

SEAT No. :

[Total No. of Pages : 2

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

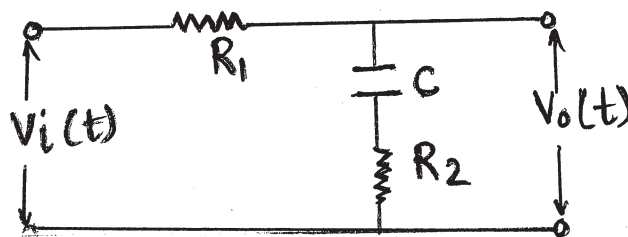
Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

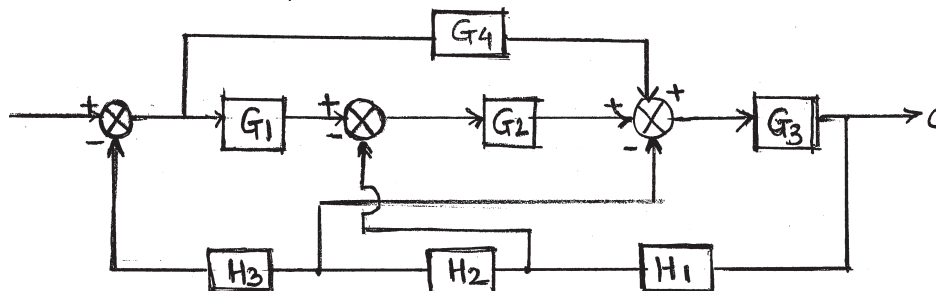
- 1) *Answer Q1 or Q2, Q3 or Q4 & Q5 or Q6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

- 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]



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- 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 $G(s) = \frac{K}{s(Ts + 2)}$, 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 $G(s) = \frac{K(s + 4)}{s(s^3 + 8s^2 + 4)}$ when input is $\frac{At^2}{2}$. [6]

