EXTC - III - CBCGS 01/6/18

EIC

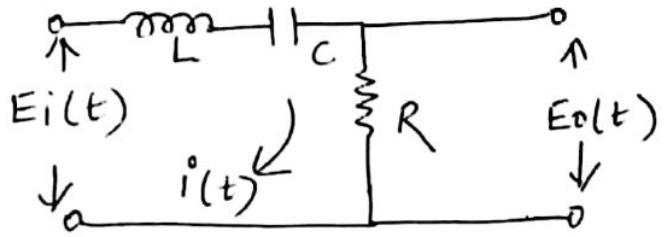
Q.P.Code: 21762

(3 Hours) [Total Marks: 80]

N. B. : (1) Question **No. 1** is **compulsory.**
(2) Attempt any **three** questions from **remaining** questions.
(3) Assume suitable **data** if **necessary.**

Q.1 (a) List name of bridges for RLC measurement with proper classification. 04

Q.1 (b) Find transfer function of given network. 04



Q.1 (c) What is cold junction compensation in thermocouples? 04

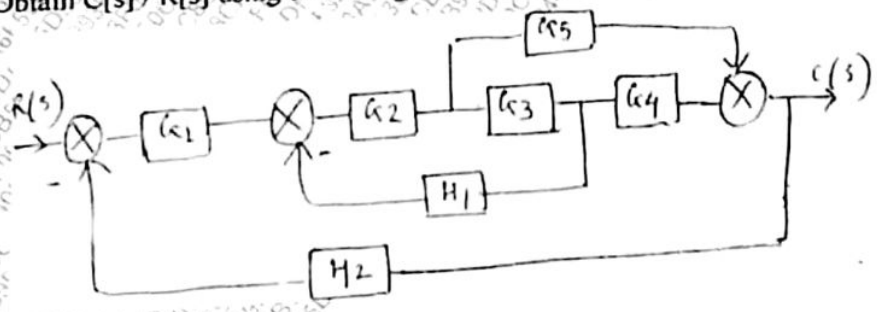
Q.1 (d) Draw a block diagram of generalized data acquisition system and explain its components. 04

Q.1 (e) Check whether given system is stable 04

$$s6 + 3s5 + 2s4 + 9s3 + 5s2 + 12s + 20 = 0$$

Q.2 (a) Explain Kelvin's double bridge and its application in low resistance measurement. 05

(b) Obtain C[s] / R[s] using block diagram reduction technique 05



Q.3 (a) For unity gain system having 10

$$G(s) = \frac{K}{S(S+5)(S+3)}$$

Sketch root locus and comment on stability.

(b) Draw Bode plot for following transfer function is 10

$$G(s)H(s) = \frac{800}{s^2(s+10)(s+40)}$$

And predict stability.

TURN OVER

Q.4 (a) What is multiplexing ?compare FDM with TDM 05

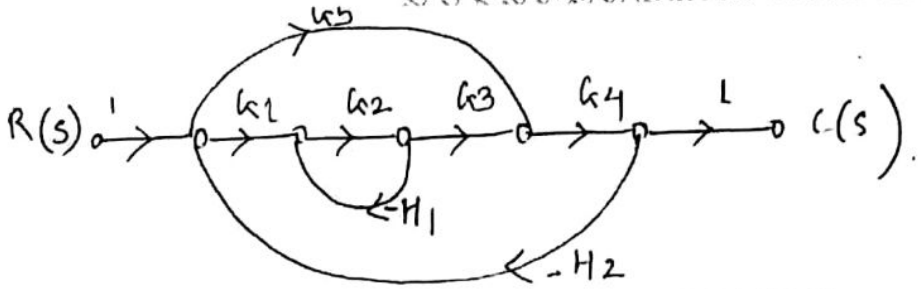
(b) The system has 05

$$G(S)H(S) = \frac{K}{S(S+2)(S+4)(S+8)}$$

Using Routh criterion find range of K for stability.

(c) Explain working of strain gauge and its application in load measurement. 10

Q.5 (a) Find C(s)/R(s) using Mason's gain formula 10



(b) Draw and discuss Hay bridge and its application in measurement of inductance. 10

Q.6 (a) Explain landline telemetry and discuss about any one landline telemetry system. 05

(b) For a system with transfer function $\frac{64}{s2+5s+64}$ with unit step input 05

Find damping ratio, damped frequency of oscillations and time for peak overshoot.

(c) Compare temperature transducers Thermistors and thermocouples on the basis of principle, characteristics, ranges and applications. 05

(d) Explain how the stability of system is analyzed using Nyquist criteria. 05