

Electronic Instrumentation & Control Systems

6/20/16

22

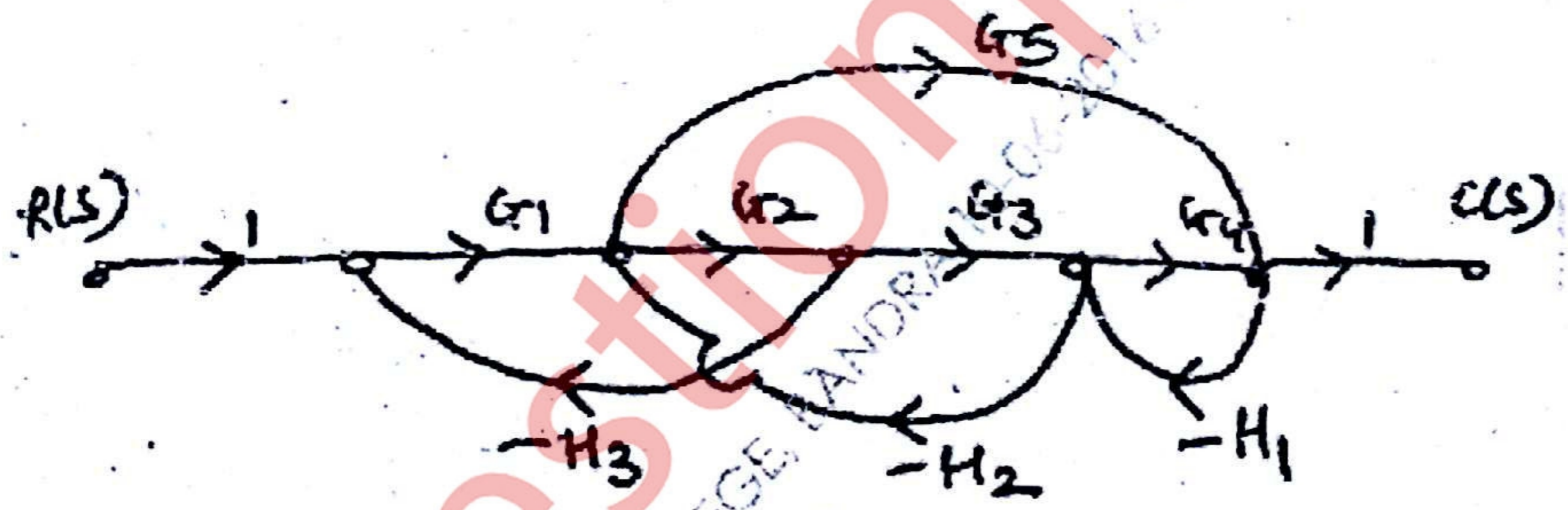
SE/IV/CPGS/BM/EI&CS  
QP Code : 534702

(3 Hours)

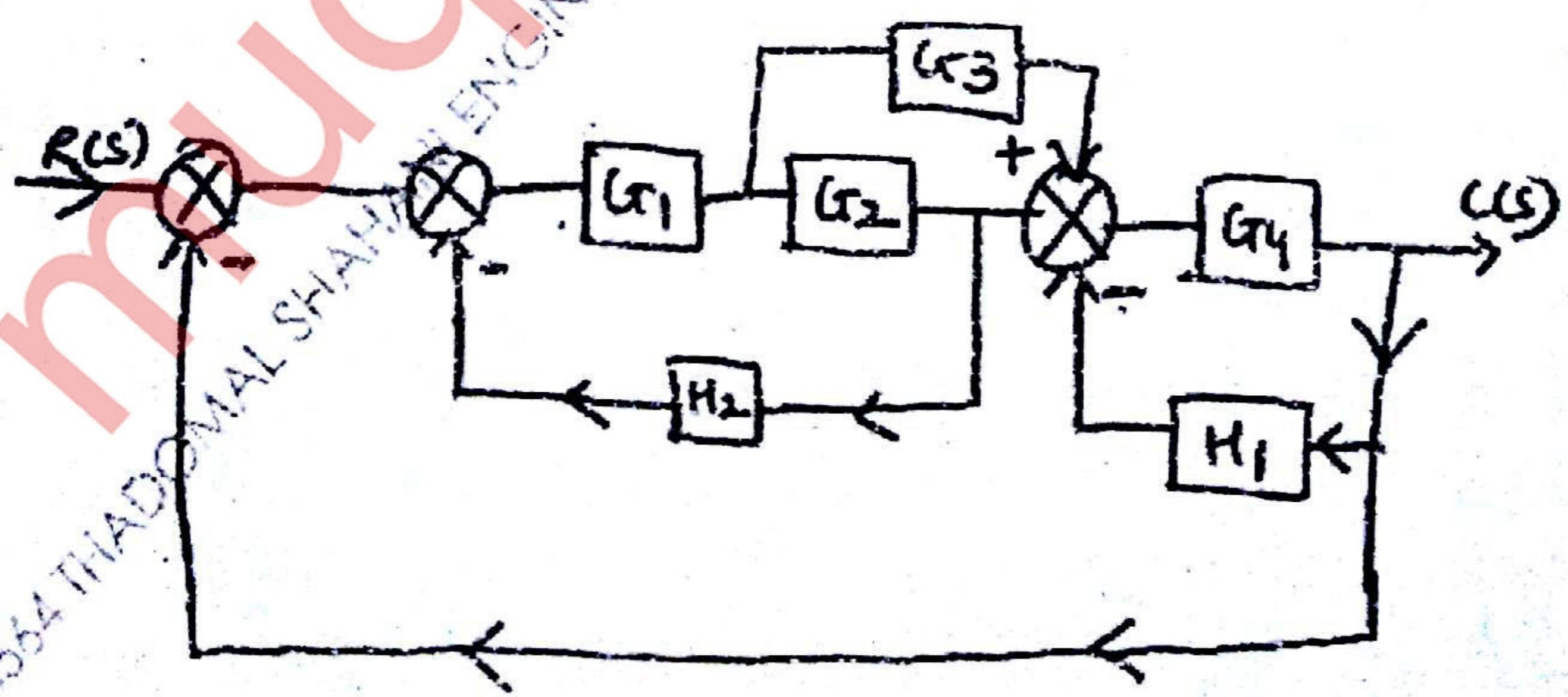
[ Total Marks : 80

- N.B. :
- (1) Questions No. 1 is compulsory.
  - (2) Attempt any three out of remaining five questions.
  - (3) Assume suitable data
  - (4) Draw diagrams wherever necessary
  - (5) Marks to right indicate full marks.

1. (a) Factors in selection of electronic voltmeters. 5
- (b) Distinguish between open loop and used loop systems 5
- (c) Find the range of K so that the following system will be stable. 5  
 $s(s^2+s+1)(s+4) + k = 0$
- (d) Draw and explain basic block diagram of CRO.
2. (a) Draw and explain digital frequency meter. 5
- (b) Find C (s) / R (s) for S.F.G show in following figure :- 10



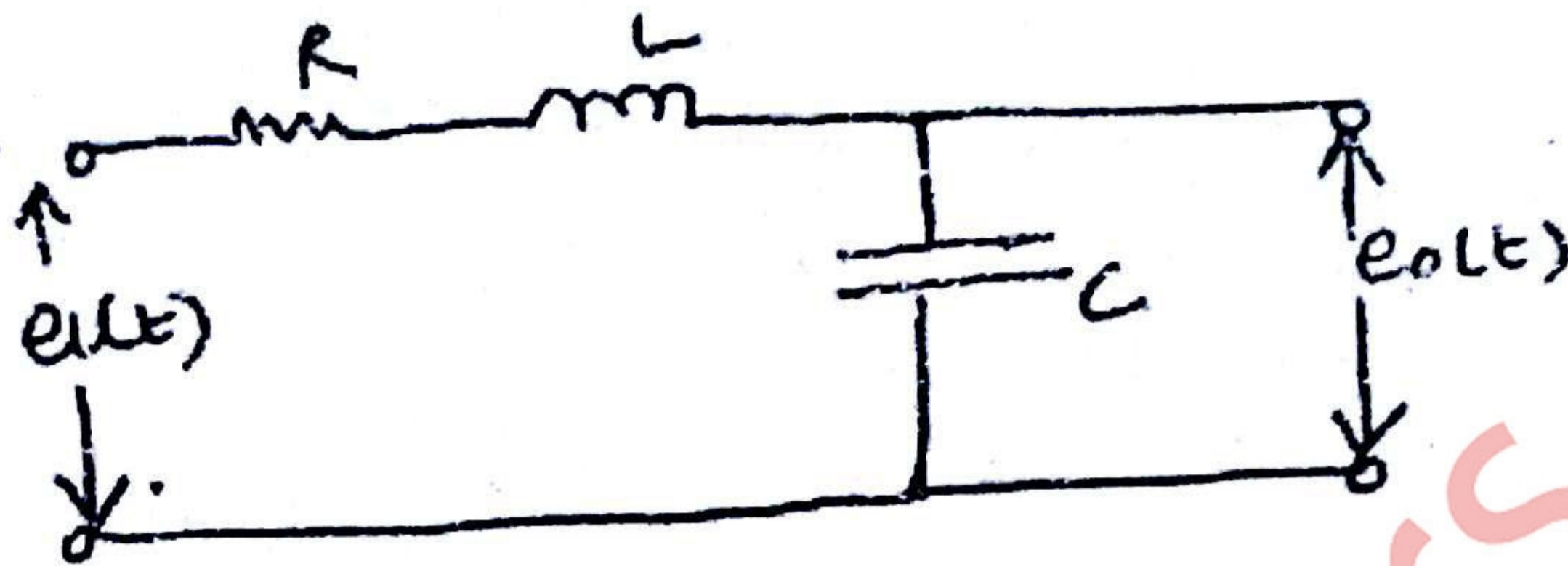
3. (a) Reduce the block diagram to its simple form and hence obtain C (S) / R(S). 10



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(b) Find out the T.F. of the given network :-



(c) A unity feedback system has  $G(s) = \frac{40(s+2)}{s(s+1)(s+4)}$

- Determine
- (i) Types of the system
  - (ii) All error coefficients
  - (iii) Error for ramp input with magnitude 4

4. (a) Sketch the rough nature of the root Locus of a certain control system whose characteristic equation is given as :-

$$s^3 + 9s^2 + ks + k = 0$$

Comment on stability.

(b) Draw and explain dual slope integrating type of DVM.

5. (a) Write short notes on :-

- (a) True RMS responding voltmeter
- (b) Average responding voltmeter

(b) Sketch the Bode plot for the system having :-

$$G(s)H(s) = \frac{20}{s(1+0.1s)}$$

6. (a) Draw diagram and explain function generator.

(b) What are lissajous patterns? Explain measurement of phase and frequency using these patterns. Also write limitations.