

4E4172

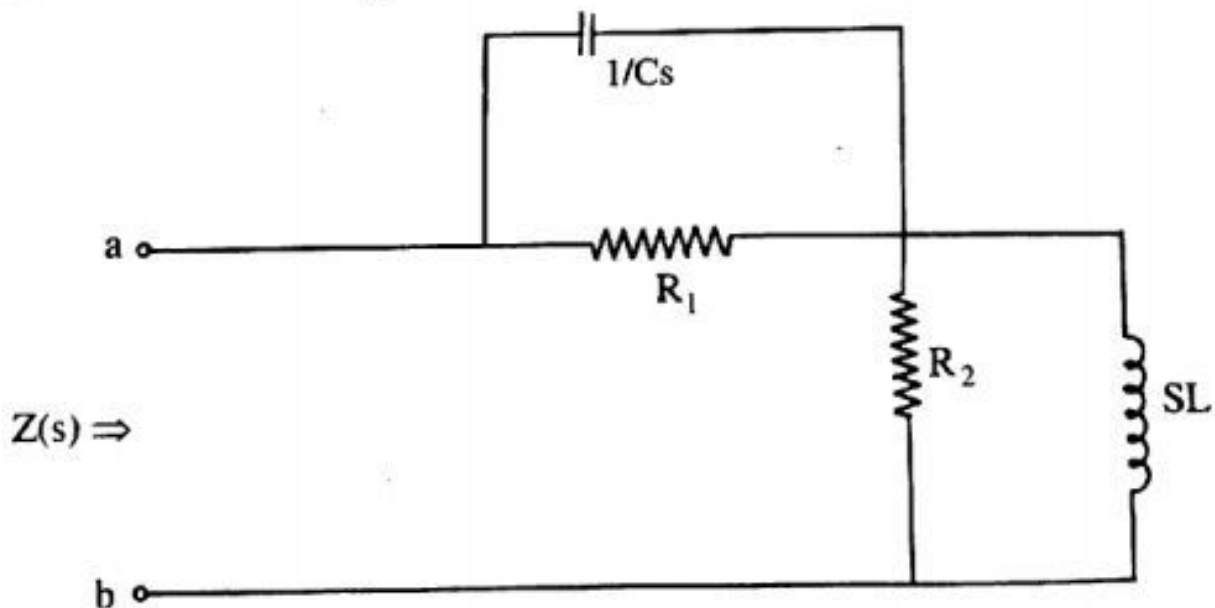
Roll No. _____

Total No of Pages: **4****4E4172****B. Tech. IV-Sem. (Back) Exam., Oct.-Nov. - 2020****Electrical Engineering****4EE2A Circuit Analysis - II****Time: 2 Hours**ersahilkagyan.com**Maximum Marks: 48****Min. Passing Marks: 16***Instructions to Candidates:*

*Attempt **three** questions, selecting **one** question **each** from any three unit. All Questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly. Use of following supporting material is permitted during examination. (Mentioned in form No.205)*

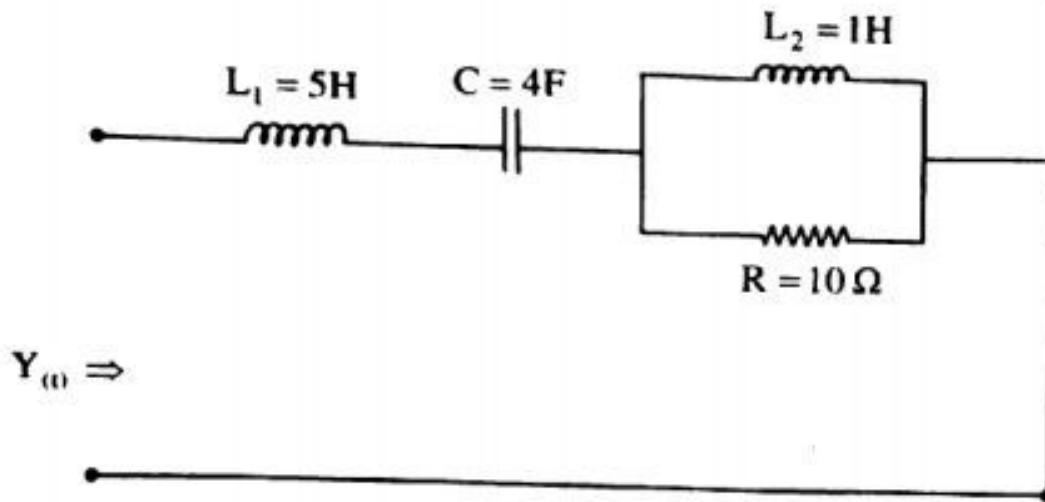
1. NIL2. NIL**UNIT-I**

- Q.1 (a) Explain the complex frequency with all physical interpretation condition. [8]
(b) Obtain the transfer impedance across point a - b. shown in fig. [8]



OR

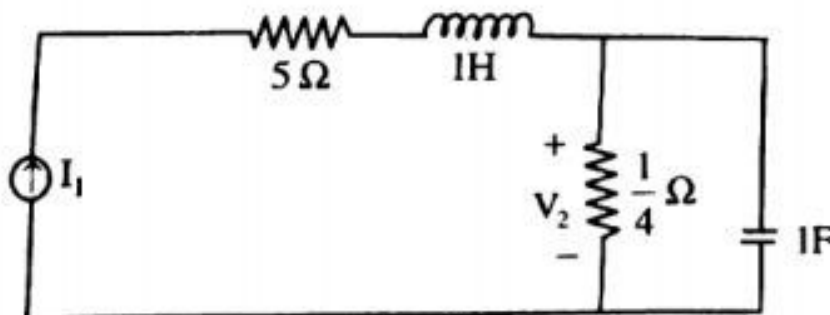
- Q.1 (a) Differentiate the series and parallel combination of electrical elements with an example in circuit. [8]
- (b) Find the transform admittance of the network shown in fig. [8]



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UNIT- II

- Q.2 (a) Explain the concept of restriction on location of poles and zeros in deriving point functions. [8]
- (b) Find the poles-zeros plot of the driving point and transfer impedances of the network shown in fig. [8]

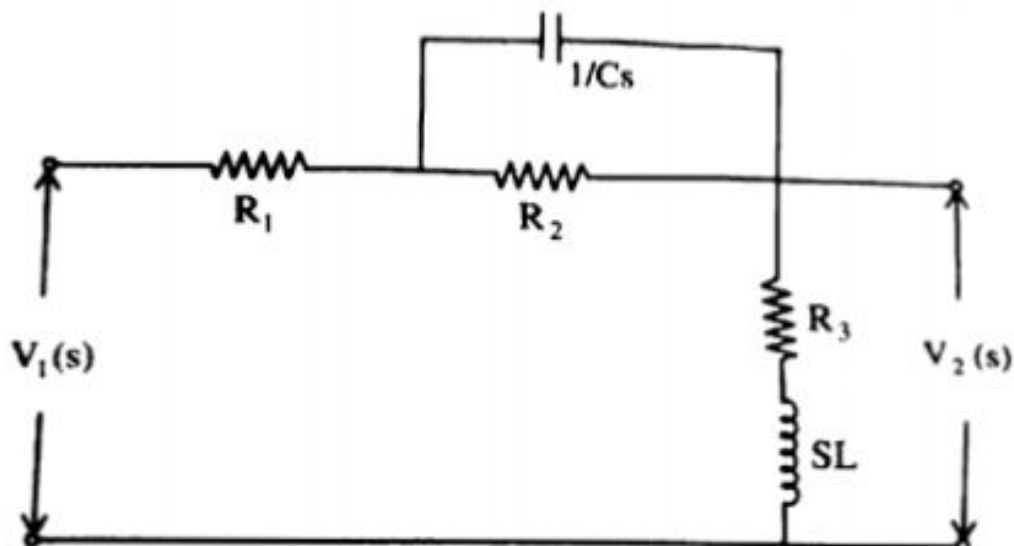


OR

- 2 (a) Explain time domain behavior from pole and zero plot with an example. [8]

(b) Obtain the transform function $V_2(s)/V_1(s)$.

[8]



UNIT- III

Q.3 (a) Explain the properties of Hurwitz polynomials on function

$$F(s) = s^4 + 4s^3 + 6s^2 + 3s + 4.$$

[8]

(b) Obtain the Foster Ist form from-

[8]

$$Z(s) = \frac{4(s^2 + 1)(s^2 + 9)}{s(s^2 + 4)}$$

OR

Q.3 (a) Check whether the given function is PR function or not.

[8]

$$Z(s) = \frac{s^3 + 5s^2 + 9s + 3}{s^3 + 4s^2 + 7s + 9}$$

(b) Find the Cauer IInd form for -

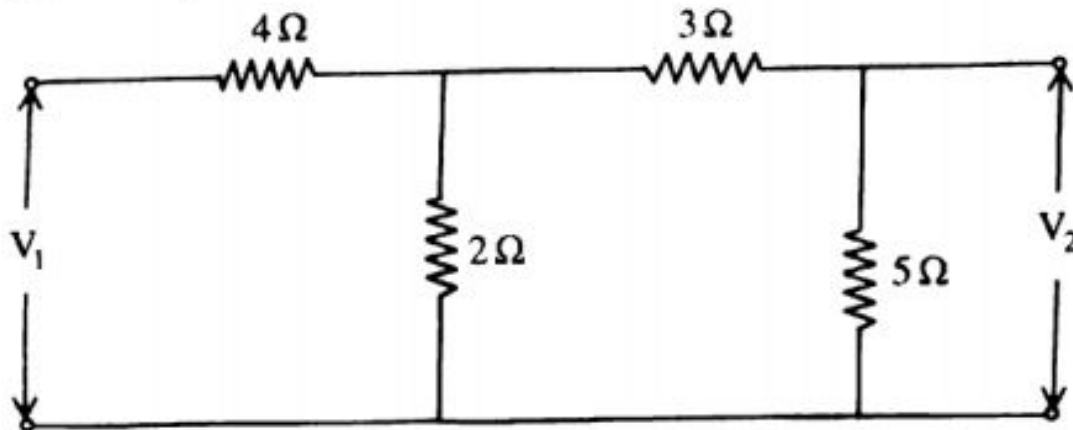
[8]

$$Z(s) = \frac{(s+1)(s+4)}{s(s+2)}$$

UNIT- IV

Q.4 (a) Find the Z parameters of the networks shown -

[8]



(b) What do you mean by image impedances? Explain and derive the expression for image parameter in terms of ABCD parameters. [8]

OR

Q.4 Convert the following –

- (a) h parameter into Y parameter [4]
- (b) Z parameter into h parameter [4]
- (c) ABCD parameter into Z parameter [4]
- (d) Y parameter into ABCD parameter [4]

UNIT- V

Q.5 (a) Derive all characteristics for constant k filter-

[10]

- (i) Low pass filter
- (ii) Band pass filter

(b) Explain the Lattice filter. [6]

OR

Q.5 (a) Design a Low pass filter to have a cut – off at 796 Hz, when terminated in a 600Ω resistance, in both the T and π configurations. [8]

(b) Explain the composite filter. [8]