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B. TECH.

THEORY EXAMINATION (SEM–IV) 2016-17

NETWORK ANALYSIS AND SYNTHESIS

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Attempt all of the following questions: **10 x 2 = 20**

(a) Define a two port network.

(b) Define network synthesis.

(c) What do you mean by transfer function?

(d) Define twig and link.

(e) Write a definition of convolution.

(f) How you can say that a network is stable .Give definition.

(g) What do you mean by filters?

(h) Give statement of superposition theorem.

(i) Write down all the properties of loop impedance matrix.

(j) Define tree in graph theory.

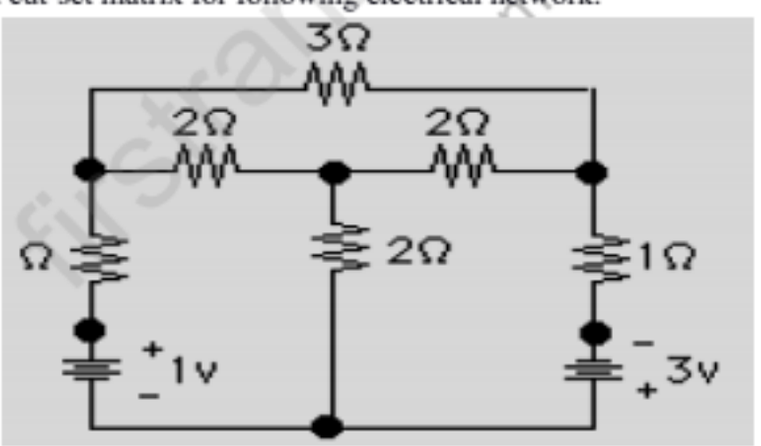
SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

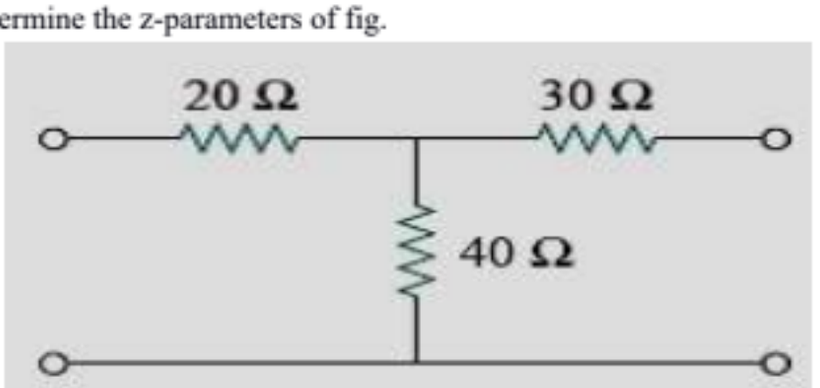
(a) Explain Z-impedance parameter in detail.

(b) Give classification of filters.

(c) Obtain cut-set matrix for following electrical network.



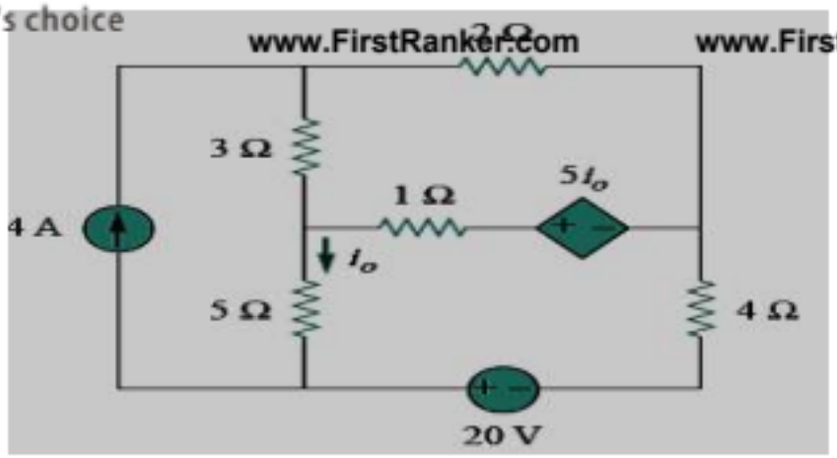
(d) Determine the z-parameters of fig.



(e) Find *io* in the circuit in Fig. using superposition theorem.

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(f) Explain admittance parameters in detail

(g) Explain in detail band stop filter, with prove.

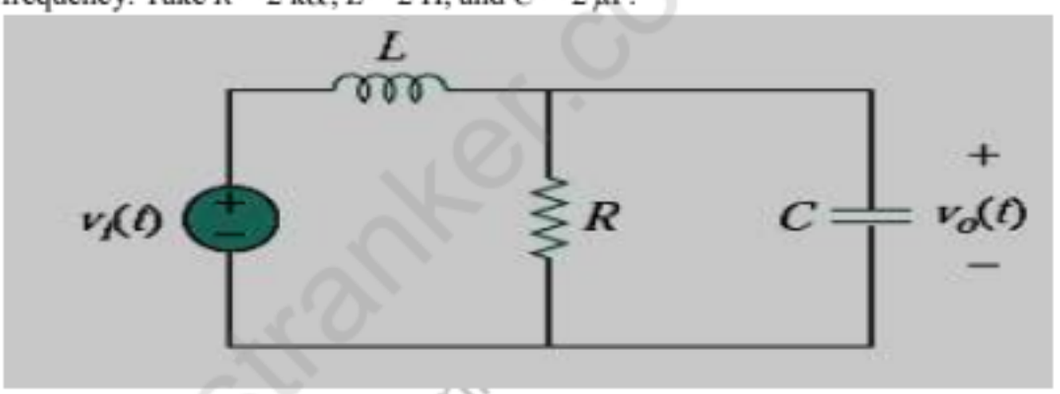
(h) Give statement and prove maximum power transfer theorem.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3 With example explain first Foster form realization of LC networks.

4 Determine what type of filter is shown in Fig. 14.39. Calculate the corner or cutoff frequency. Take $R = 2$ k&, $L = 2$ H, and $C = 2\ \mu$F.



5 Obtain Cauer form realization of following and obtain network.

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

$$Z(s) = \frac{(s+1)(s+3)}{s(s+2)}$$

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