http://www.osmaniaonline.com

Code No: 11408/CBCS

FACULTY OF ENGINEERING

B.E.(ECE) III Semester (CBCS) (Main & Backlog) Examination, Dec. 2018/Jan. 2019

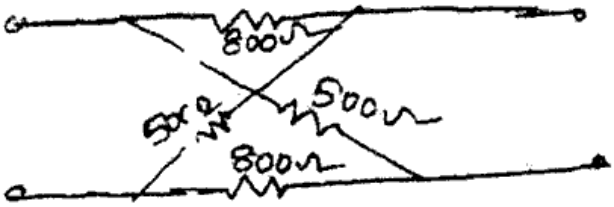
Subject: Network Analysis & Synthesis

Time: 3 Hours **Max. Marks: 70**

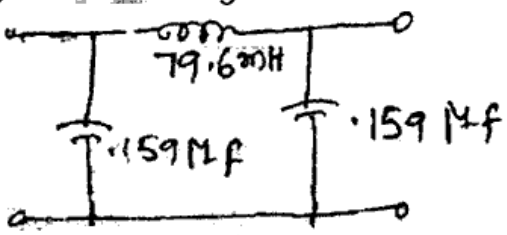
Note: Answer all questions from Part A & any five questions from Part B

PART – A (10x2=20Marks)

1. Define Image Transfer Constant and Propagation Constant of a network.
2. Find the Characteristics Impedance of the following Network.



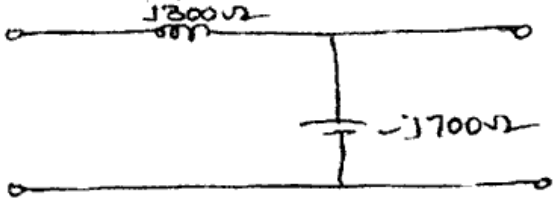
3. Justify that m-0.6 for m-derived terminating Half Sections.
4. Mention any Two important functions of an Equalizers.
5. Design a symmetrical ρ Attenuator having an attenuation of 60dB and a nominal impedance of 600Ω
6. Test Whether the following polynomial is Hurwitz or not $s^4+s^3+3s^2+2s+12$.
7. Test Whether the following system is stable or Not using RH Criteria $s^5+4s^4+6s^3+3s^2+6s+5$
8. Mention the Properties of Positive Real Functions.
9. Find the cutoff Frequency of the following filter.



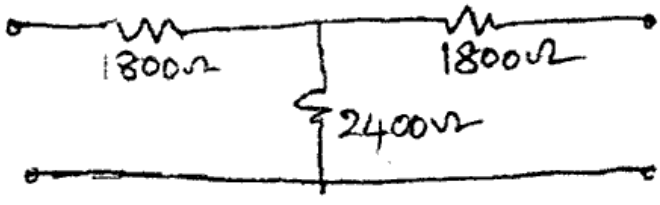
10. Derive the condition for a filter to lie in Pass Band.

PART – B (5x10=50 Marks)

11.(a) Find the Image Impedance of the following Network



(b) Find the Characteristics Impedance of the following Network. Derive the formulae you use.



Contd..2..

http://www.osmaniaonline.com

http://www.osmaniaonline.com

http://www.osmaniaonline.com

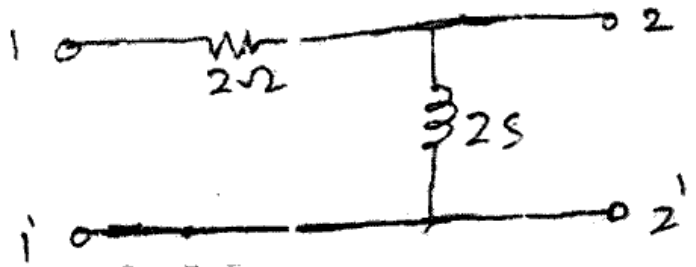
http://www.osmaniaonline.com

12 (a) Design a m-Derived High Pass Filter(T-Section) having a cutoff frequency of 4KHz and Frequency of Infinite attenuation 3KHz and a nominal Impedance of 500Ω.
(b) Design a Band Pass Filter with a Cut off Frequencies of 10KHz, 12 KHz and a Nominal Impedance of 600Ω

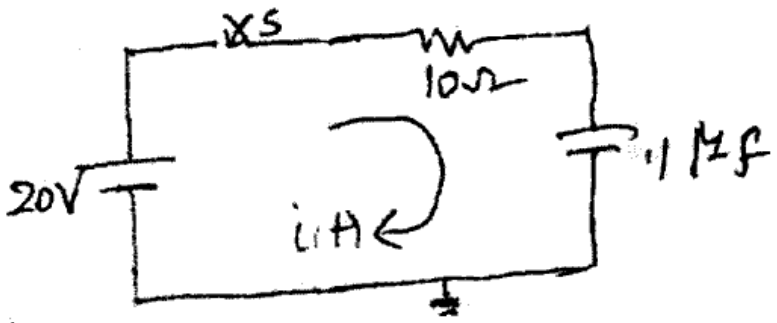
13 (a) Design a Composite High Pass Filter(ρ Section) having a Cutoff Frequency of 6 KHz Frequency of Infinite Attenuation is 5KHz, and a Nominal impedance of 600Ω.
(b) Find the Frequency at which Proto type T-section Low Pass Filter having a Cut off Frequency of f_c have an Attenuation of 15dB.

14 (a) Design a Symmetrical Bridge T Attenuator having an Attenuation of 60dB, and a Nominal Impedance of 600Ω. Derive the Formulae you use.
(b) Design a Full Series Equalizer for a Design Resistance of 600Ω and an attenuation of 12dB at 800Hz.

15 (a) For the Network shown Find the Driving Point Impedance, Transfer Impedance Z_{21}



(b) Find the Current i(t) in the following Circuit Using Laplace Transformations Switch closed at t=0, Assume all the initial conditions are zero.



16 (a) The Driving Point Impedance of LC Network is given by $Z(s)=s^4+4s^2+3/s^3+2s$ Synthesize using second Cauer Method.
(b) The Driving Point Impedance of RL Network is given by
$Z(s)=5(s+1)(s+4)/(s+3)(s+5)$
Synthesize using Foster First Method.

17 Answer any Two of the following
a) Properties of Positive Real Functions
b) Derive the Characteristic Impedance of a Lattice Network
c) Find the Laplace Transform of the following Waveform.

****

http://www.osmaniaonline.com

http://www.osmaniaonline.com

http://www.osmaniaonline.com