Roll No. ……………………………….

3rd sem./ECE

Subject: Network Filter and Transmission Line

Time: 3 Hrs.   M.M. :100

SECTION – A

Note: Very Short Answer type question. Attempt any 10 Parts.   (10*2=20)

Q.1   Answer the following question briefly: -

a)   Define Asymmetrical network?

b)   Differentiate Balanced and Unbalanced Network using circuit diagram?

c)   What is image impedance?

d)   Explain 'Decibel' and 'Neper' with suitable mathematical expression?

e)   Write down the Expression for the symmetrical T Type Attenuator?

f)   Define Cut-off frequency in Filters?

g)   What are Primary Constant and Secondary Constant in Transmission Line?

h)   Define VSWR?

i)   Define Reflection Coefficient?

j)   What is stub matching?

k)   Define Characteristic Impedance?

l)   Define Broadband matching?

m)   What is the Disadvantage of Constant K-type filter over M-derived filter?

n)   Define infinite frequency in M-derived filter?

SECTION -B

Note: Short Answer Type Questions. Attempt any Five parts   (5*4=20)

Q.2   i)   Derive the relationship between Characteristic Impedance of symmetrical T and π Network?

ii)   Explain Image Transfer Constant?

iii)   Write a short note on Crystal Filter?

iv) Stablish the relation between cut off frequency and infinite frequency of attenuation for m-derived low pass filter?

V) Derive the expression for Distortion less transmission line?

vi) Write a note on iterative impedance of Asymmetrical T network?

vii) Write down the complete analysis of the composite filter?

viii) A transmission line has the following primary co-efficient at frequency 5 Khz.

R=30 ohm/km   L=1.5 mH/km   G=2 uMho/km   C=0.5 uF/km

Calculate Characteristic Impedance and Attenuation Constant?

SECTION- C

Note: Long Answer Type Questions. Attempt any Three question   (3*20=60)

Q.3   a)   Derive the Expression for Propagation constant for symmetrical π Network?

        b)   Write a note on Various Network Configuration?

Q.4   a)   Design the various design parameters of symmetrical 'π' type attenuator?

        b)   Also Find the design impedance (Ro) and attenuator per section of a symmetrical 'π'type attenuator having series arm of 275 ohm and shunt arm each of 450 ohm.

Q.5   a)   Derive the characteristic impedance of constant k-type high pass filter?

        b)   Differentiate between Active and Passive Filter?

Q.6   a)   Derive the expression for gain of Butterworth low pass filter?

        b)   Write a short note on complete classification of filters?

Q.7   a)   Explain Quarter wave transformer?

        b)   Write down the various advantages of stub matching in Transmission Line?