Total No. of Printed Pages:4

SUBJECT CODE:- 124
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E. (EEP/EE/EEE) Examination Nov/Dec 2015
Network Analysis
(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

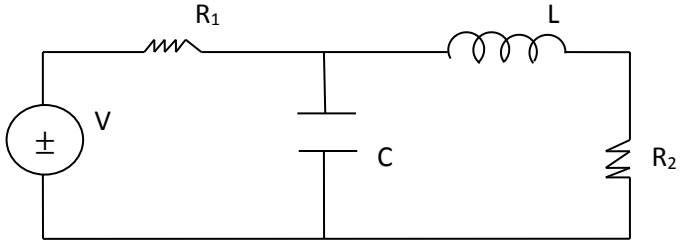
"Please check whether you have got the right question paper."

N.B i) Use suitable data if required.
ii) Q.No.1 from section A and Q.No.6 from section B are compulsory.
iii) Solve any two questions from remaining questions from each section A and B.

Section- A

Q.1 Solve any five 10

i) Define lumped and distributed network.
ii) Fund the Laplace transform of unit step function.
iii) State superposition theorem and its application.
iv)Enlist the applications of Laplace transform.
v) Draw the voltage control voltage source and voltage control current source.
vi) Write the differential equation for the series RLC circuit.
vii) Define convolution integral
viii) Draw the dual of the network



Q.2 A Find the input impedance for the circuit shown in fig.2 05

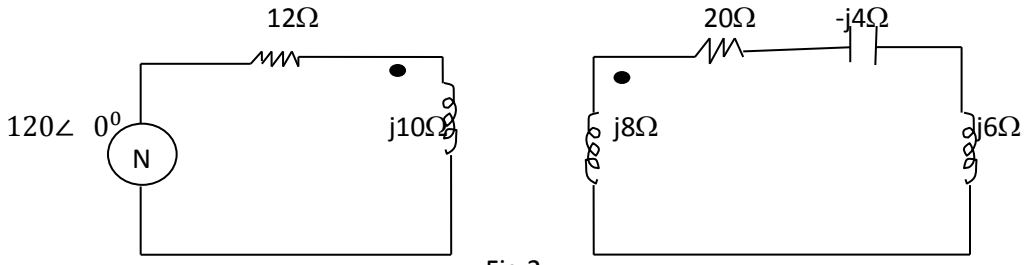


Fig.2

B Find the current is various tranches in the network the concept of super mesh in figure 3. 05

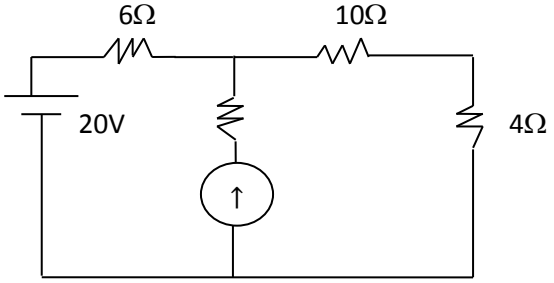


Fig.3

K-2015

C In the network of figure 4 find the impedance as sun from terminals A & B if Z_L=10j 10Ω in figure 4 05

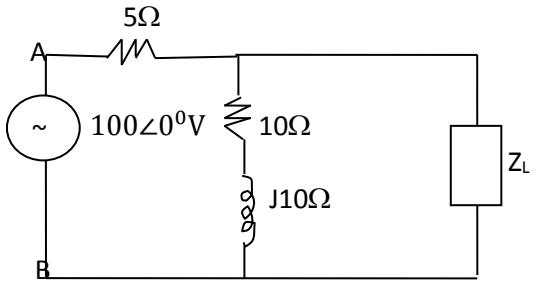


Figure 4

Q.3 A Define coupled circuits. Explain in detail the dot convention for coupled circuits. 05

B Explain the concept of source transformation in the analysis of the electrical networks. 05

C Find the voltage of nodes 1 and 2 in the network of figure 5 05

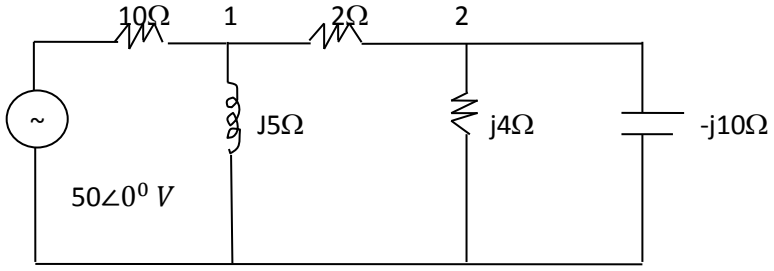


Fig.5

Q.4 A In the circuit of figure 6 the initial current is zero. Find the source current after closing of switch s. 05

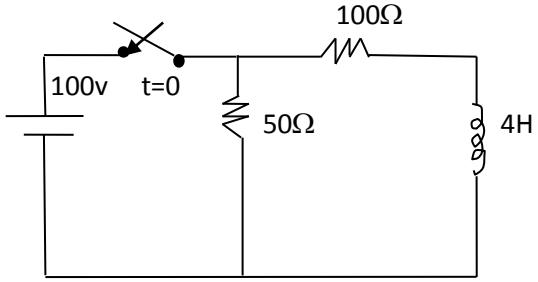


Fig.6

B For the circuit shown in fig 7 the switch is closed at t=0 find i(o⁺), $\frac{di(0^+)}{dt}$, $\frac{d^2i(0^+)}{dt^2}$ 05

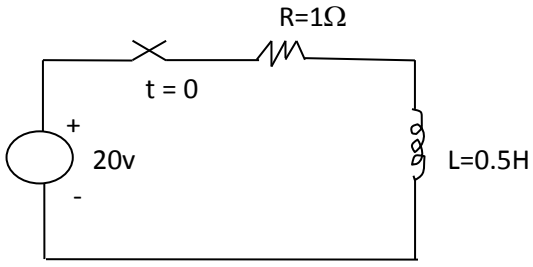


Fig.7

C State and explain reciprocity theorem 05

Q.5 A An RC series has R=2Ω and c=0.25f find current response if the during voltage is step voltage αu(t-3) 05

B An impulse voltage $10\ \delta(t)$ is applied to a series RC circuit having R=2Ω and c=0.5f. find 05

a) Time constant b) i(t) c) i(t) at t=0 and t=∞

C The current through a 2f capacitor is given by the following 5 domain equation. 05

$Z(s) = \frac{24(s+1)(s+3)}{(s+2)(s+4)(s+5)}$. Find voltage across the capacitor

Section- B

Q.6 Solve any five 10

i) Draw the i) T-network ii) Lattice network

ii) What is Fourier seris

iii) State the z parameter of two port network

iv) write y parameters In terms of z parameters

v) A function is given by

$P(s) = \frac{2s}{s^2+4}$ draw its pole zero plot.

vi) Differentiate between one port and two port networks

vii) What is s domain networks?

Viii) Obtain the s domain equation of series RL circuit with no initial current?

Q.7 A Find the h parameters for the networks. 05

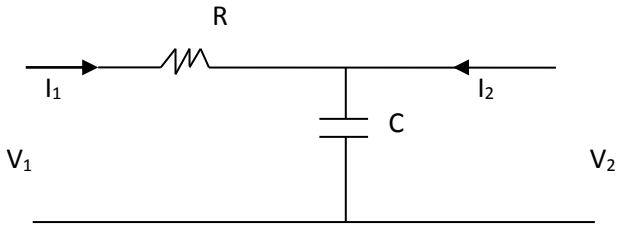
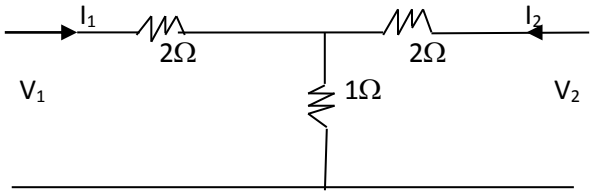


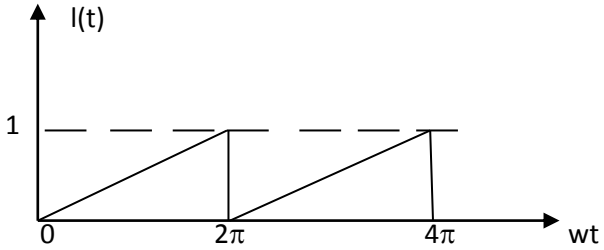
Figure .8

B Find z parameters for the circuit in figure 9. 05



C What is mean by poles and zeros of a network function? 05

Q.8 A Find the exponential Fourier seris of the given waveform in fig 10 05



B Write short note on half wave symmetry 05

C A coil draws 5 amps when connected to 100v 50Hz supply. The resistance of the coil is 5Ω. Determine 05

1) Inductance of the coil 2) Real power reactive power, appetent power of the coil.

Q.9 A The current of the following waveform is passed through 5Ω resistance. Find power consumed (Fig.11) 05

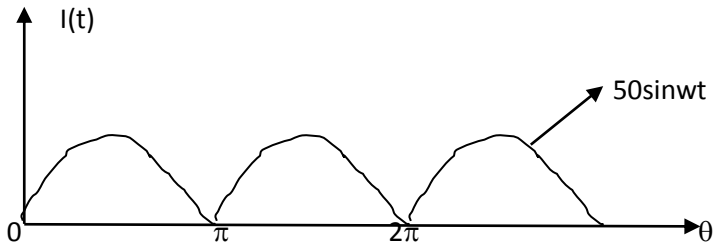


Fig.11

B Obtain the transmission parameters for the circuit shown in figure 12 05

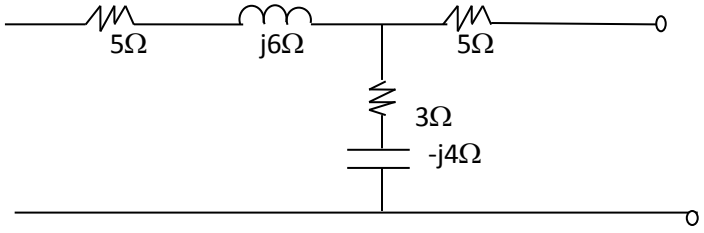


Fig.12

C Explain different types of inter connection of two ports. 05

Q.10A Obtain the transform impedance z(s) of the network $z(s) = \frac{V(s)}{Z(s)}$ with zew initial condition, transform the network into s-domain (fig.13) 05

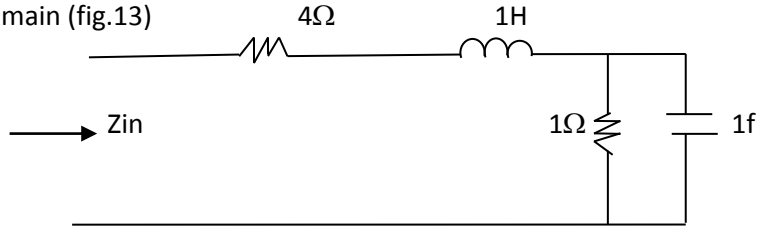


Figure 13

B Explain necessary conditions for transfer functions. 05

C For the given network function? Draw pole zew plot and obtain time response u(t) 05

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