Total No. of Printed Pages:4

**SUBJECT CODE NO:- P-390**
**FACULTY OF ENGINEERING AND TECHNOLOGY**
**S.E. (EEP/EE/EEE) Examination MAY/JUNE-2016**
**Network Analysis**
**(Revised)**

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

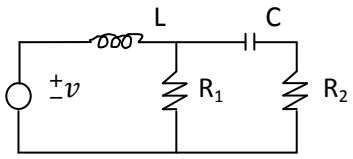
"Please check whether you have got the right question paper."

N.B i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii) Attempt **any two** questions from the remaining questions in each section.
iii) Assume suitable data, if necessary.

**Section A**

Q.1 Solve **any five** 10

a) Enlist the applications of Laplace transform
b) Draw the dual of the network




c) Find the Laplace of following function $t^2$
d) Define and give characteristics of unit ramp function
e) State the superposition theorem
f) Define convolution integral
g) Write the feature of Laplace transform
h) What is super node

Q.2 a) State and proof the Mailman theorem 05
b) Obtain the Thevenin equivalent circuit across a-b of the circuit in fig. 1 05

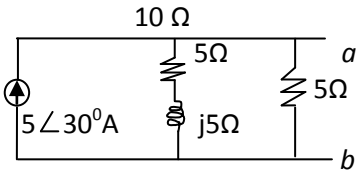



*fig.1*

c) Find the current through capacitor using superposition in fig. 2 05

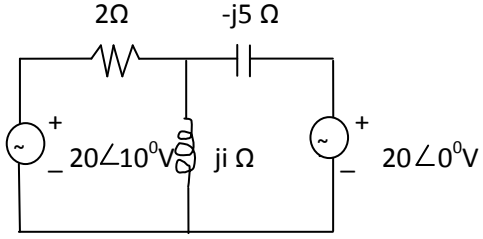



*Fig. 2*

Q.3 a) Find $i_1$ and $i_2$ from the circuit in fig 3 05

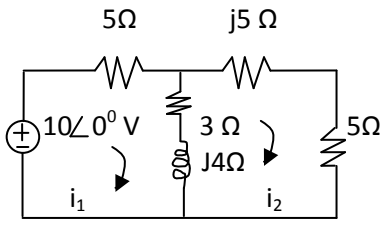



Fig. 3

b) In the network of fig. 4 find the impedance as seen from A & C if $Z_L$ = 10- j 10Ω 05

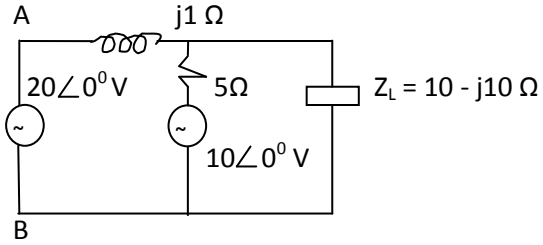



*Fig. 4*

c) State and explain reciprocity theorem 05

Q.4 a) Find the Laplace transform of the function in fig. 5 05

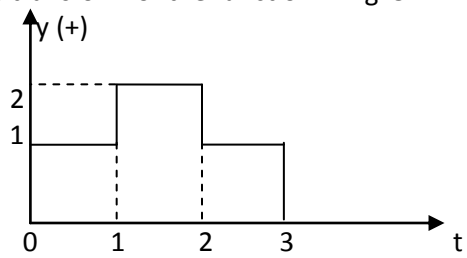


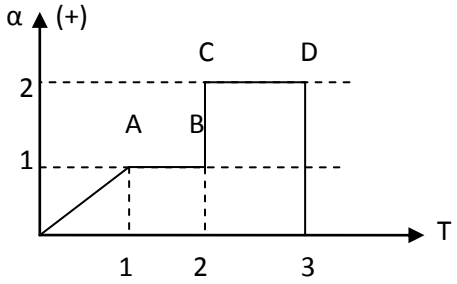

*Fig. 5*

b) Find the inverse Laplace transform of the following functions 05

$$\frac{S^2/S+3}{(S+1)(S+4)^2}$$

c) A series RLL circuit with R = 5Ω , $\alpha$ = 0.1H and C = 500 uf has a constant voltage V = 10V applied t = 0 find resulting current 05

Q.5 a) Find the Laplace Transform of non-periodic function in fig. 6 05




b) Explain the concept of source transformation in the analysis of the electrical networks 05

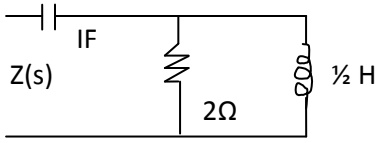
c) Explain with neat circuit diagram dot convention 05

**Section B**

Q.6 Solve **any five** 10

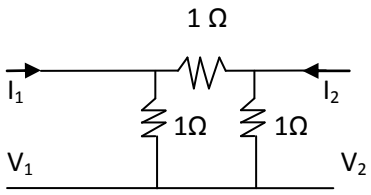
a) What is a two port network
b) Write the z parameters for two port network
c) What is the physical significance of reactive power
d) Write Y parameter in terms of Z parameters
e) What is Fourier series? What are the applications of Fourier transform
f) Define RMS value of an alternating quantity
g) Define stability of a active network
h) Draw the T-network and Ladder n/w

Q.7 a) Find the driving point impedance and its poles and zeros in fig. 7 05




b) State all the instruction on pole zero location for transfer function 05
c) Derive the inter conversion to convert h parameters into y parameters 05

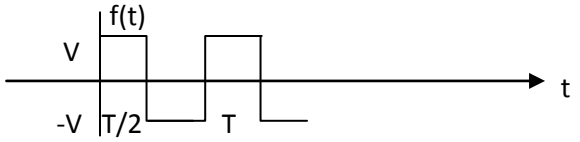
Q.8 a) Find ABCD parameters for the circuit in fig 8. 05




b) A typical two port network is characterized the following eq. 05
$2V_1 + 4\ I_2 = I_1$
$V_2 + 6\ V_1 = 8\ I_2$
Find the values of $y_{11}$ and $z_{21}$
c) For the given network function draw pole zero plot and obtain time response i(+) 05

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

Q.9 a) Obtain the Fourier series of the waveform in fig. 9 05




b) Write short note on stability of active networks 05
c) What are the problems in optimizing power transfer 05

Q.10 a) Explain in brief concept of even and odd functions 05

b) For the network show that $\frac{v_2}{v_1} = \frac{2s}{7s^2+7s+5}$ 05

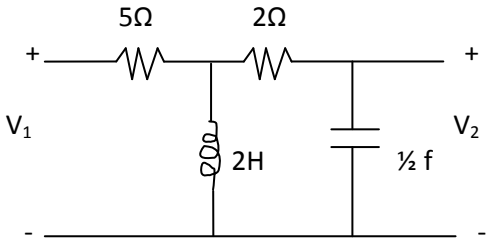
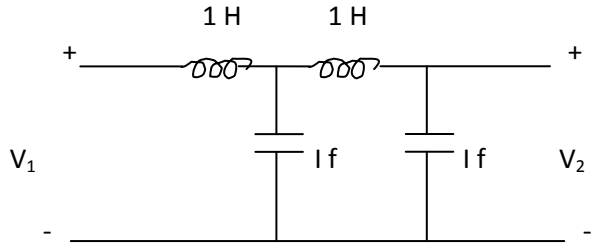



*Fig. 10*

c) Find network function $\frac{V_2}{V_1}$ for the network in fig. 11 05

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