

Roll No.

Total Pages : 4

BT-3/D-18

33088

NETWORK ANALYSIS AND SYNTHESIS

Paper : ECE-205(N)

Opt. (1)

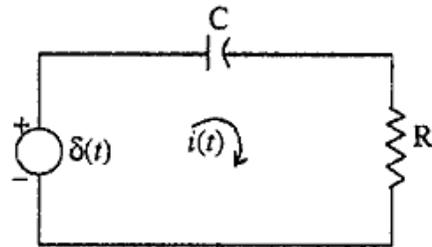
Time : Three Hours]

[Maximum Marks : 75

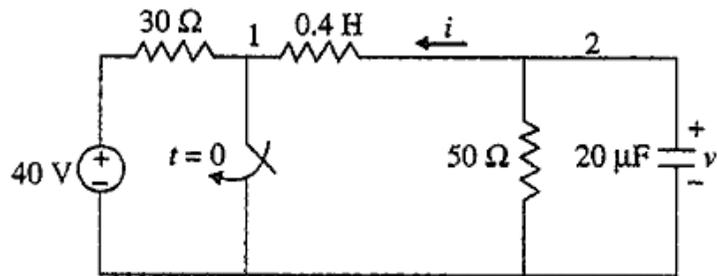
Note : Attempt five questions in all, selecting at least one question from each unit.

UNIT-I

- 1. (a) Calculate impulse response of the current $i(t)$. 8



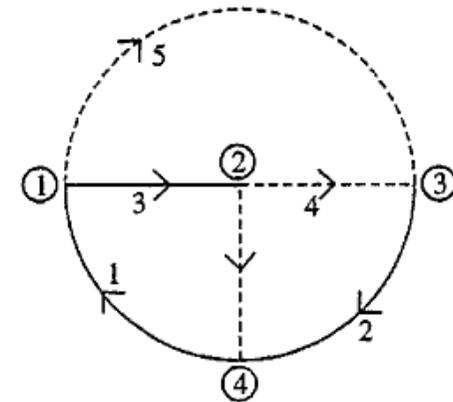
- (b) Find $v(t)$ for $t > 0$ in the RLC circuit given below : 7



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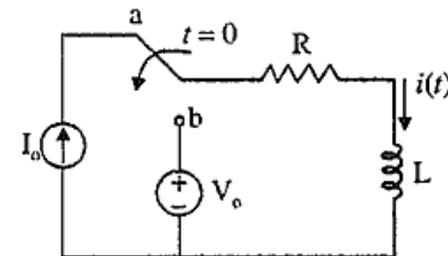
- 2. (a) For the tree shown, develop the fundamental cut-set matrix : 8



- (b) Derive and explain the step response of parallel RLC circuit. http://www.kuonline.in 7

UNIT-II

- 3. (a) As shown in the following figure the switch moves from position a to position b at $t = 0$. Find $i(t)$ for $t > 0$ using Laplace Transform : 8

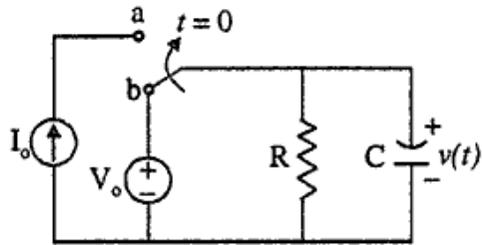


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- (b) List and explain the various restrictions on pole and zero locations for transfer functions. 7

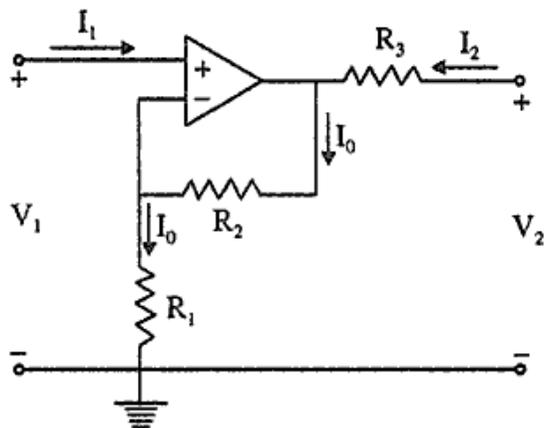
4. (a) The switch in the following figure has been in position b for a long time. It is moved to position a at $t = 0$. Calculate $v(t)$ for $t > 0$ using Laplace Transform. 8



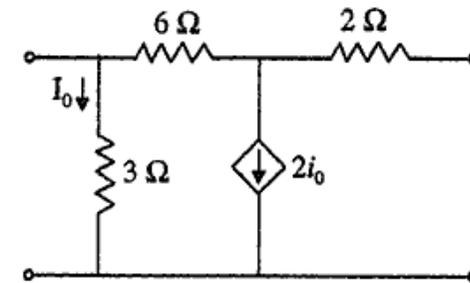
- (b) List and explain various restrictions on pole and zero locations for driving-point functions. 7

UNIT-III

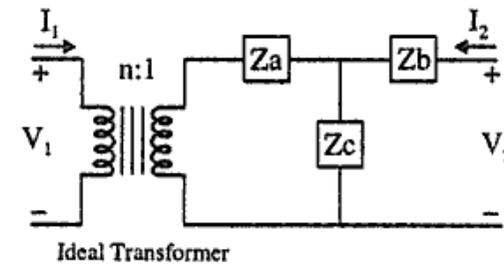
5. (a) Determine the Z parameters for the two-port shown in the following figure. 8



- (b) Determine the Y parameters of the two-port network. 7



6. Find the Z parameters of the circuit shown in the following figure : 15



UNIT-IV

7. (a) Design m-derived T-sections LPFs for $R_0 = 500$ ohms, $f_c = 3600$ Hz and $f_\infty = 4000$ Hz. 8
 (b) Define Positive real functions and its properties. 7

8. (a) An impedance is given by $Y(s) = \frac{3s^2 + 18s + 24}{s^2 + 3s}$. 8

Realize the network in Foster-II form. 8

- (b) List and explain the synthesis properties of LC impedance or admittance functions. 7