Pokhara University

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| Level: Bachelor | Semester – Fall | Year : 2012 |
| Programme: BE | | Full Marks: 100 |
| Course: Network Theory | | Pass Marks: 45 |
| Time : 3hrs. |

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| *Candidates are required to give their answers in their own words as far as practicable.* |
| *The figures in the margin indicate full marks.* |
| Attempt all the questions. |

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|  | 1. Switch K is kept at position 2 and steady state condition is reached. At t=0, the switch is moved to position 1. Find i,  and  at t=0.      1. A dc voltage of 100V is applied in the adjoining circuit and the switch K is open. The switch K is closed at t=0. Find the complete expression for current. | 7  8 |
|  | 1. In the figure shown below the switch K is closed at Position 1 at t=0. After a lapse of time of one time constant the switch is moved to position 2. Determine the complete current. Also draw the Response.  1. In the circuit below, Vo= 10V, R= 5Ω, L=1H and C=0.25F, the switch is closed at time t=0, using Laplace technique obtain the particular solution for I (t) through the circuit. Assume that there is zero current through inductor and zero charge across capacitor before switching. | 8  7 |
|  | 1. Plot the poles and zeroes in s-plane and obtain T(t) for the transfer function of a network given by . 2. Check the stability of the following system expressed in polynomial as using Routh Hurwitz criteria. | 7  8 |
|  | 1. Determine the Fourier series of the wave form given by  1. For the given circuit determine Z parameter. | 7  8 |
|  | 1. Sketch the Bode plot of the transfer function.   G(S) =   1. Write the necessary and sufficient condition for a function to be PRF. Check either the given function is PRF or not.  |  | | --- | | S2 + 6S + 8 | | S2 + 4S +3 | | 8  7 |
|  | 1. The Driving point impedance of a LC network is given by  |  | | --- | | 10 (S2 + 4) (S2 + 16) | | S(S2 + 9) |   Z(s) =    Obtain the Foster I and Foster II form of Realization.   1. For the network shown below, find the Z and Y parameters. | 7  8 |
|  | Write short notes on **any two:**   1. Dependent and Independent Voltages Sources 2. Positive Real function 3. Filter and its types | 2×5 |