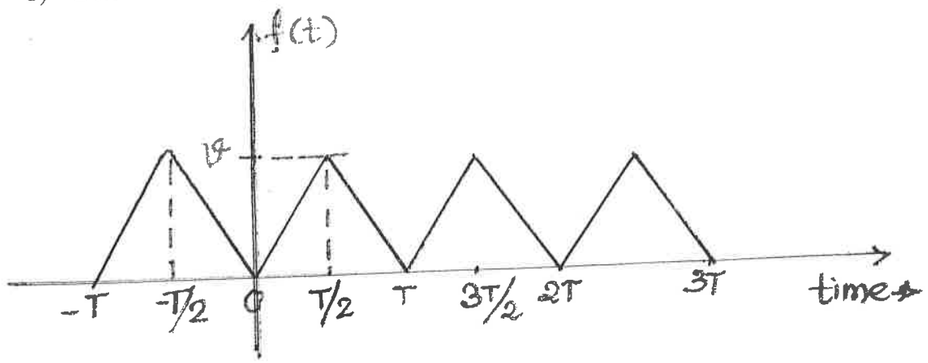
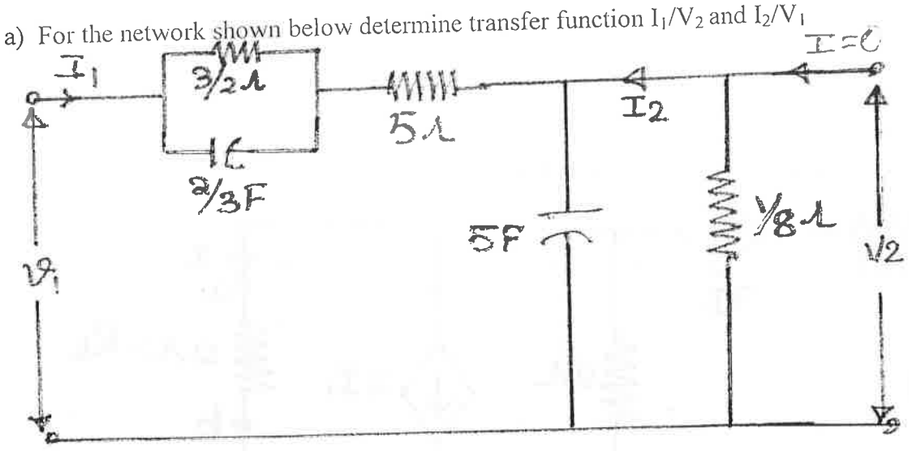
b) Derive Fourier trigonometric series for following waveform as shown below [06]



7 a) For the network shown below determine transfer function I_1/V_2 and I_2/V_1 [06]



b) State maximum power transfer theorem. Derive the necessary condition for maximum power transform by considering inductance in circuit.

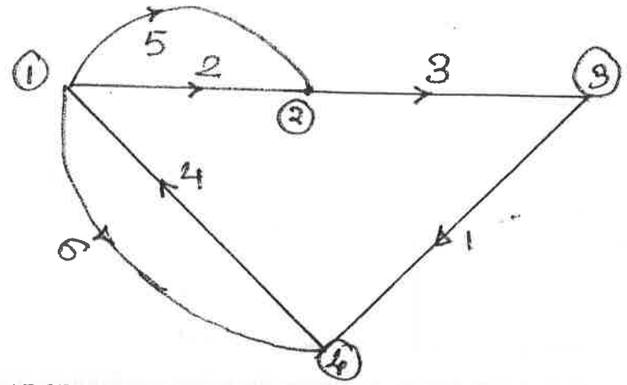
A Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)
S. E. (EEP-REV)Examination
End Semester Examination NOV 2016

EE 244 : Network Analysis

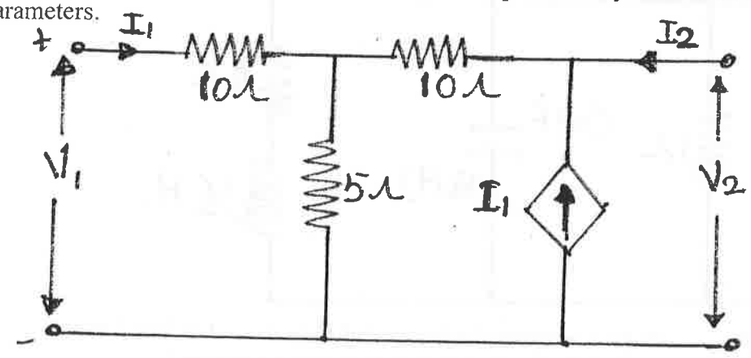
Time: Three Hours *Date:* 12 NOV 2016 *Max. Marks: 60*

N.B:-
1. Solve any five questions.
2. Assume suitable data if necessary and state it clearly

Q.1 a) Define cut set and tie set related to graph theory, find cut set for following oriented graph as shown below. Consider 2,3,4 as tree branches. [03]

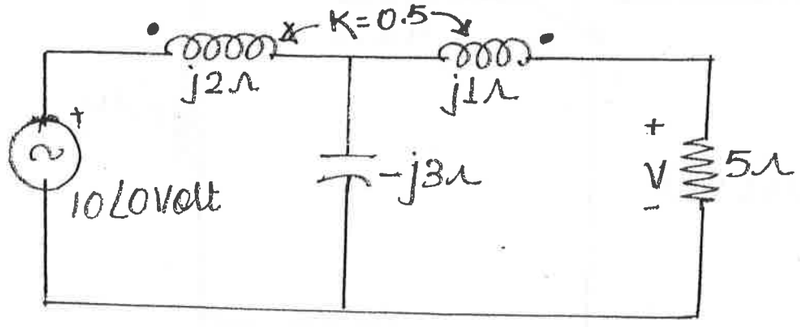


b) Find out ABCD parameter, state the circuit is reciprocal or symmetrical. Hence find out Y parameters. [06]

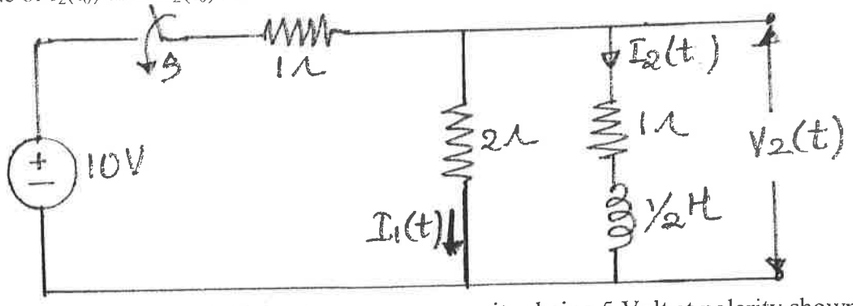


c) Starting from fundamentals, derive the Fourier transform of a unit ,ramp and impulse functions [03]

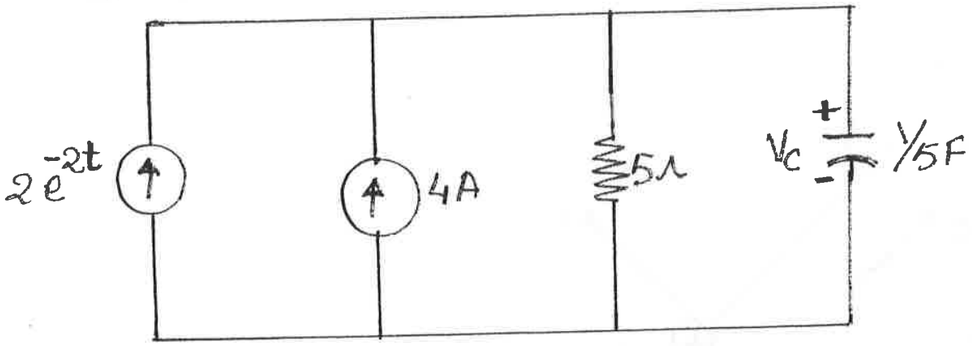
Q2 a) Find voltage V across [illegible] on magnetically coupled circuit shown below., [06]



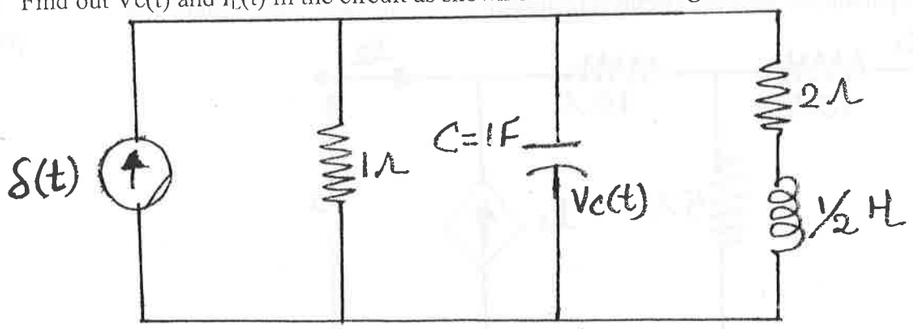
b) The circuit as shown below at time t_0 after switch S was closed it is found that V_2=+5 volt .Find the value of $I_2(t_0)$ and $dI_2(t_0)/dt$. [06]



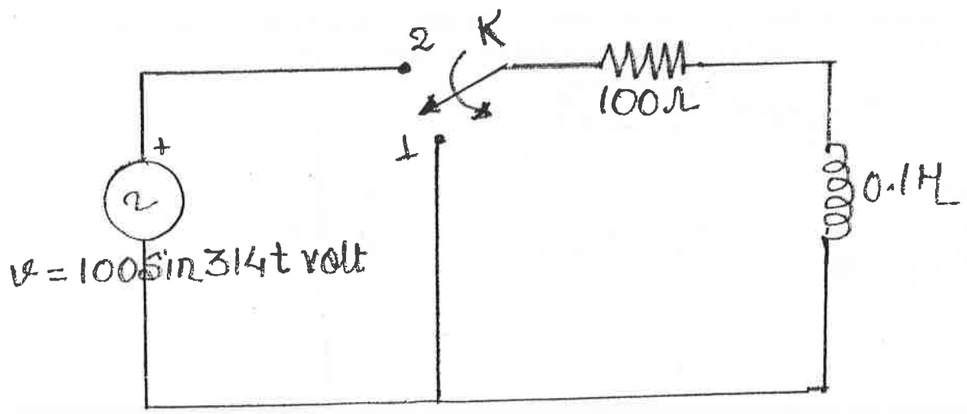
Q.3 a) In the circuit shown below initial voltage across capacitor being 5 Volt at polarity shown, find $V_C(t)$ using time domain analysis. [06]



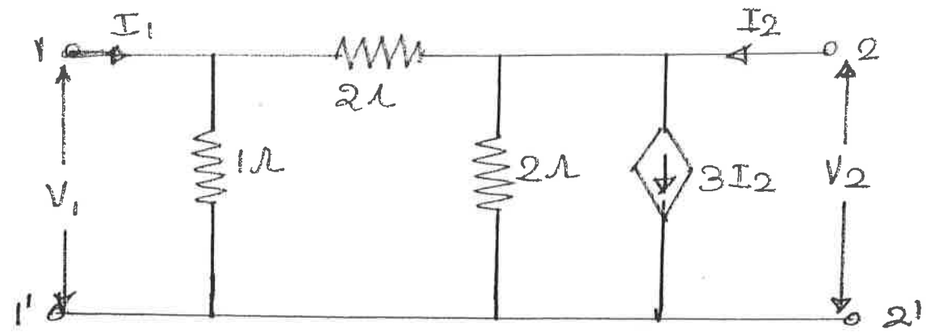
b) Find out Vc(t) and $I_L(t)$ in the circuit as shown below. Assuming the initial condition is zero. [06]



Q4 a) Obtain the current at t>0 if a. c. voltage V is applied when switch K is moved to 2 to 1 at t=0. Assume steady state current of 1Amp in LR circuits when switch was a position 1. [06]

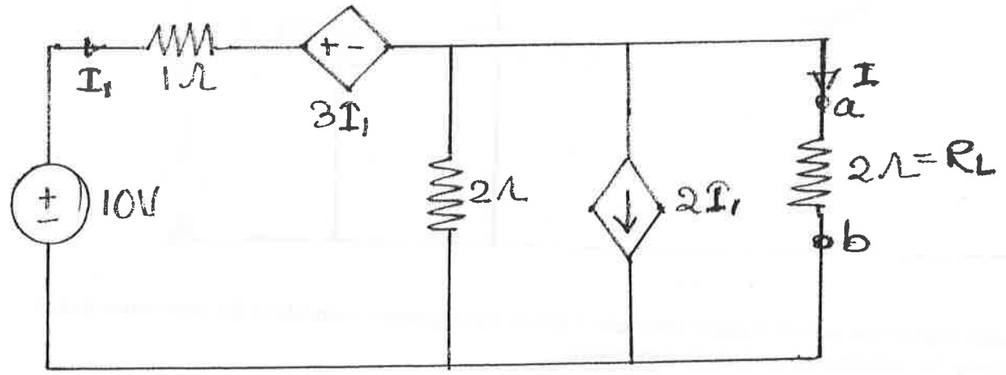


b) For the circuit shown below, find Z parameters. Hence find ABCD parameters. [06]



Q5 a) Define ABCD parameters. What is physical significance? Derive the condition for symmetry and reciprocity for ABCD parameters. Also find inter-relationship with H parameters. [06]

b) Determine current **I** as shown below Norton's theorem. [06]



Q.6 a) Determine V_1, V_2 and V_3 using super-node analysis [06]