II/IV.B.E. DEGREE EXAMINATION.

First Semester

Electronics And Communication Engineering

NETWORK THEORY

(Common with Electrical and Electronics Engineering, Electronics and Instrumentation Engineering)
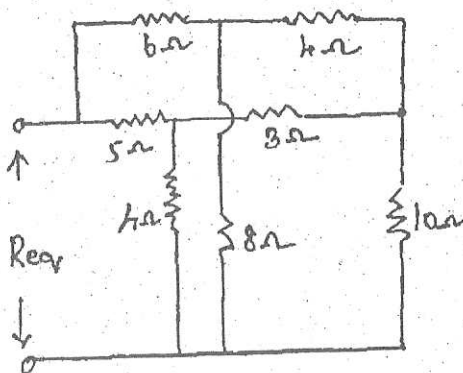
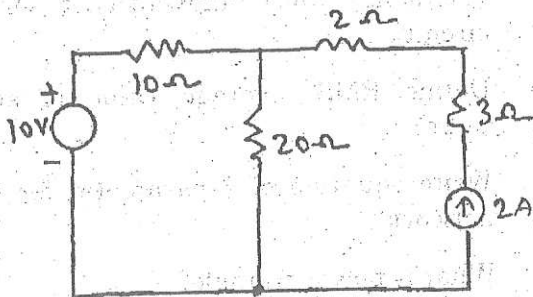(Effective from the admitted batch of 2006–2007)

Time : Three hours　　　　　　　　　Maximum : 70 marks

1.　(a)　Define Kirchoff's current and voltage laws?

　　(b)　State maximum power transfer theorem?

　　(c)　Write an expression for Resonance Frequency and bandwidth of series RLC circuit?

　　(d)　Define RMS, average value of sinusoidal wave?

　　(e)　Write equation of z–parameter for two part network?

　　(f)　What is power triangle?

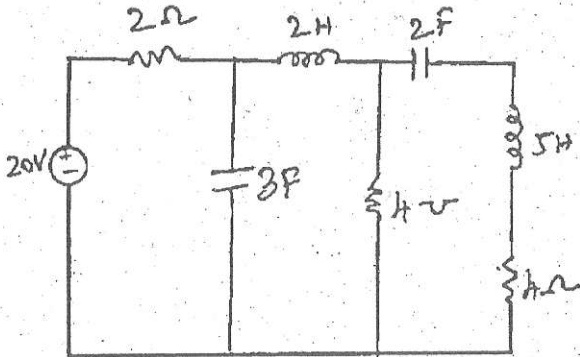　　(g)　Write laplace transfer of function $f(t) = e^{-at}$?

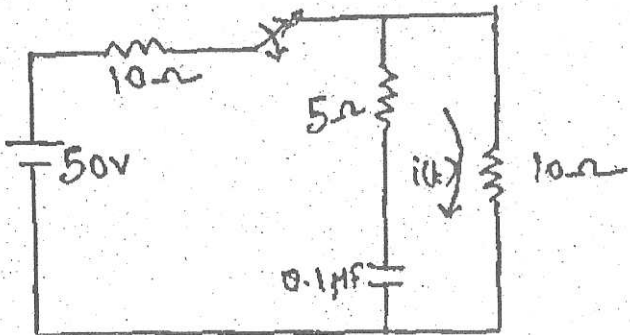2. (a) Determine the equivalent resistance of following circuit.

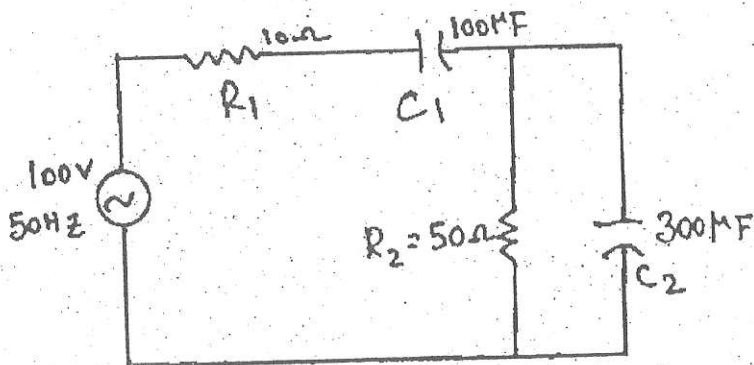(b) Explain superposition theorem? And find out the voltages across the 2 Ω resister shown in figure.

3. (a) Draw the dual of following circuit

(b) Find the current equation when the switch S is opened at t = 0.
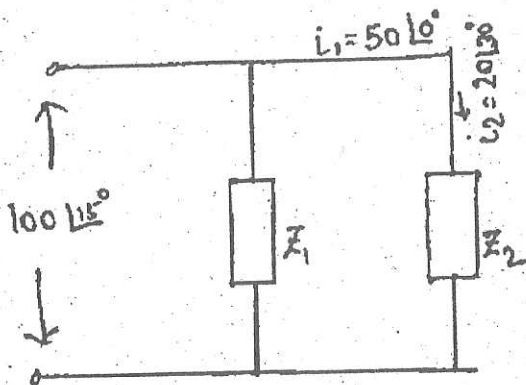

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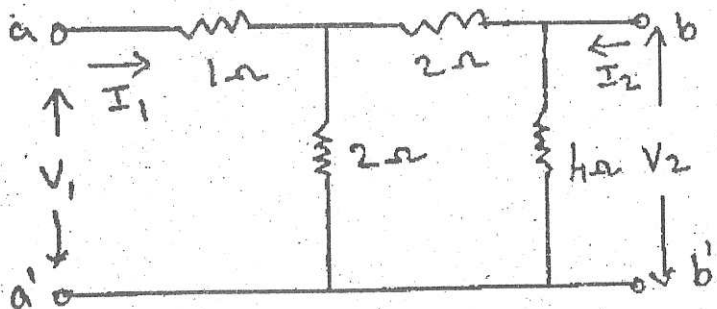4. (a) From the following circuit determine the total impendence and phase angle and total current?

(b) Define expression for DC Response of an R–L series circuit?

5. (a) Define :

    (i) Power factor.

    (ii) Real Power.

    (iii) Apparent Power.

    (iv) Power factor.

(b) Determine the true power, reactive power and apparent power in each branch. What is the power factor total circuit.

6. (a) A series RLC circuit with 10 Ω, 0.1H and 50 μf respectively are applied a voltage $V = 50 \lfloor 0° $ with a variables frequency. Find the resonant frequency and the value of frequency at which maximum voltage account inductor?

(b) Draw and explain B–phase balanced star loud with necessary phaser diagram?

7. (a) Derive an expression for co-efficient of coupling 'k'?

(b) Find the y-parameter of following figure.

8. (a) Explain step, ramp and Impulse function with necessary expression.

(b) Write the mesh equation using the inspection method.

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