Code: 9A02406

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

NETWORK THEORY
(Electrical & Electronics Engineering)

Time: 3 hours   Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1   (a)   Explain the single watt meter method measurement of power with a neat diagram.
    (b)   Three coils each having a resistance of 20 Ω and an inductive reactance of 15 Ω are connected in star and fed by a 3-phase, 400 V, 50 Hz system. Find (i) Line current. (ii) Power. (iii) Power factor.

2   The power flowing in 3-Φ, 3 wire balanced load system is measured by the two-wattmeter method. The reading of wattmeter A is 4000 W and on wattmeter B is -1000 W. What is the power factor of the system and also derive the expression for power factor?

3   A series RL circuit with R = 20 Ω and L = 10H has a constant voltage, V = 50 V applied at t = 0 as shown in fig below. Derive the equation for current and determine the current i, the voltage across resistor and the voltage across inductor.
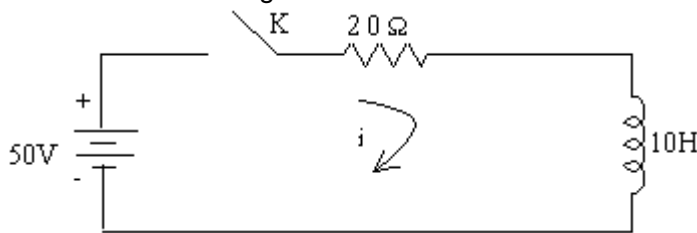
4   A series R-C circuit has R = 20 Ω and C = 100 μF. A voltage V = 200 sin(314t) is applied at t = 2.14 m sec. Obtain an expression for 'i'. Also, find the value of current after time 1 m sec from the switching instant.

5   Find the z-parameters for the circuit shown below:
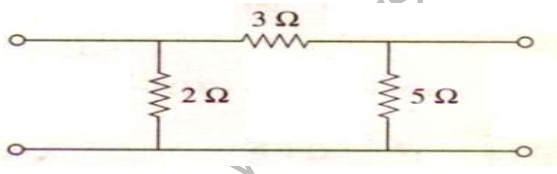
6   Find the transmission parameters for the following network:
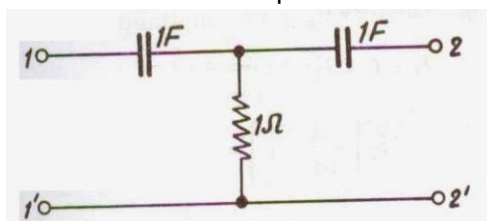
7   Derive the Fourier series of a half-wave rectified sine wave.

8   (a)   Define inverse Fourier transform.
    (b)   Find the inverse Fourier transform of $y(w) = \pi\delta(w) + \dfrac{1}{jw} + \dfrac{2(1+jw)}{(1+jw)^2 + 16}$.