

Code: 9A02406

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B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013

NETWORK THEORY

(Electrical and Electronics Engineering)

Time: 3 hours

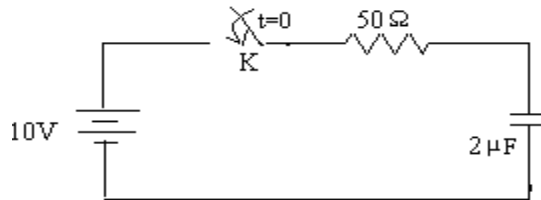
Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

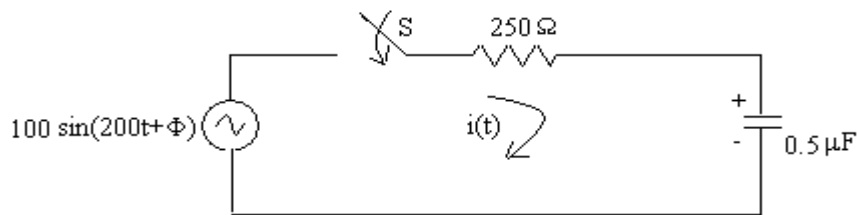
- 1 (a) Explain the three watt meter method measurement of power with a neat diagram.
- (b) Three coils each having a resistance of 20Ω and an inductive reactance of 15Ω are connected in delta and fed by a 3-phase, 400 V, 50 Hz system. Find (i) Line current (ii) Power and (iii) Power factor

- 2 A symmetrical 3-phase, 100 V, three wire supply feeds an unbalanced star connected load, with impedances of the load as, $Z_R = 5 \angle 0^\circ$, $Z_Y = 2 \angle 90^\circ$ and $Z_B = 4 \angle -90^\circ$ ohms. Find the (i) Line currents. (ii) Voltage across the impedances. (iii) The displacement neutral voltage by using star-delta conversion method.

- 3 (a) Obtain the expression for $i(t)$ in a series R-C circuit is excited with a dc voltage source V , when the switch is closed at time $t = 0$.
- (b) In the circuit shown in fig below, switch 'K' is closed at $t = 0$. Find the values of i , di/dt and d^2i/dt^2 at $t = 0^+$.



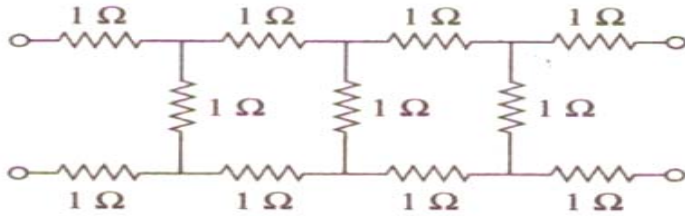
- 4 In the RC circuit shown in the fig below, the capacitor has an initial charge $Q_0 = 25 \times 10^{-6}$ C with polarity as shown. A sinusoidal voltage $V = 100 \sin(200t + \Phi)$ is applied to the circuit at a time corresponding to $\Phi = 30^\circ$. Determine the expression for the current $i(t)$.



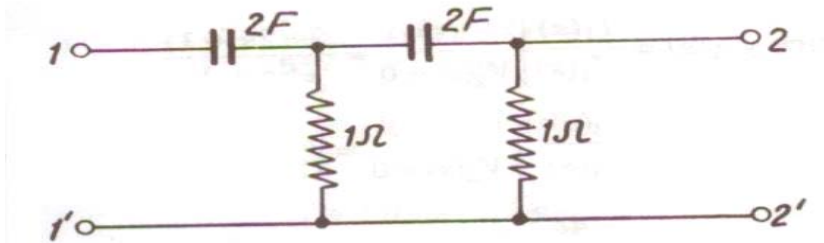
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5 Find the impedance parameters of the network shown below:



6 Find the y-parameters for the following network.



7 Determine the Fourier series for the half-wave rectified cosine function.

8 Discuss the time integration and Frequency differentiation properties of Fourier transform.
