

SREE VIDYANIKETHAN ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to JNTUA, Ananthapuramu)

I B.Tech II Semester (SVEC-16) Regular/Supplementary Examinations May - 2019**BASIC ELECTRICAL AND ELECTRONICS ENGINEERING****[Civil Engineering, Mechanical Engineering]**

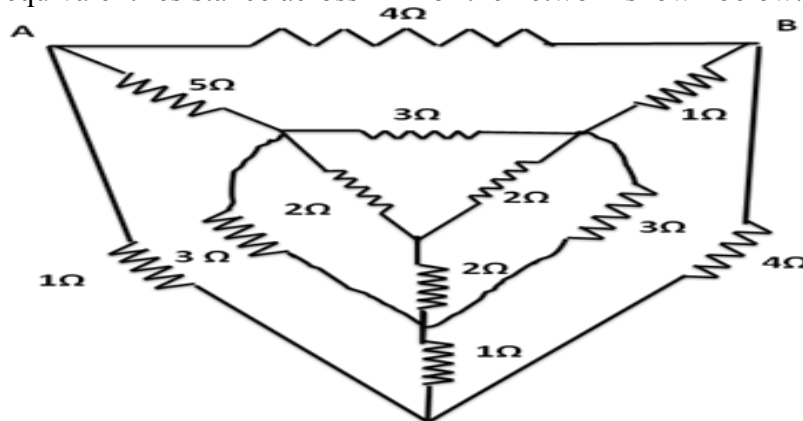
Time: 3 hours

Max. Marks: 70

Answer One Question from each Unit.**All questions carry equal marks.****UNIT-I**

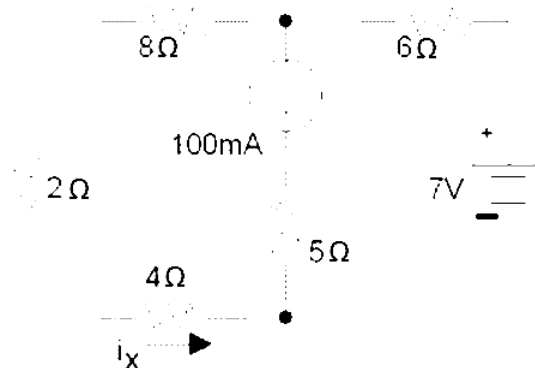
- 1 a) Find the equivalent resistance across AB for the network shown below.

7 Marks



- b) Solve for the current i_x flowing right through the 4Ω resistor using Mesh-Current analysis.

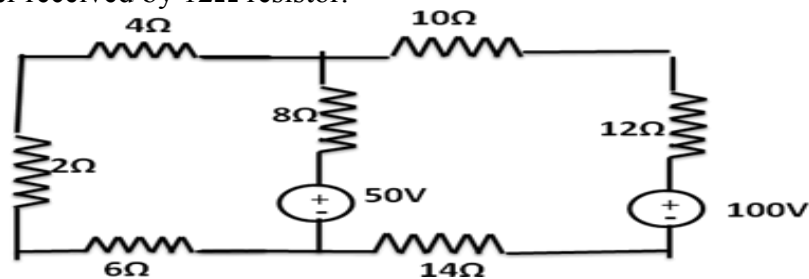
7 Marks



(OR)

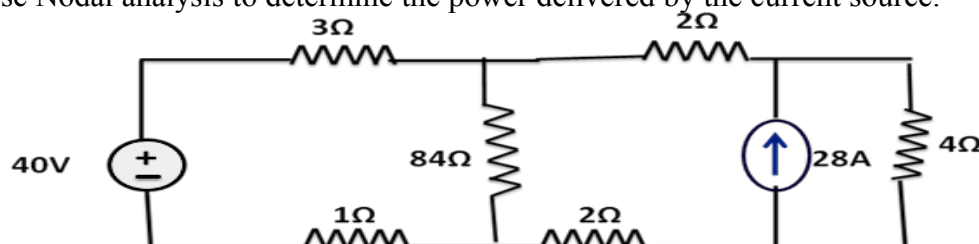
- 2 a) Using Mesh analysis determine the current through 8Ω resistor. Also determine the power received by 12Ω resistor.

7 Marks



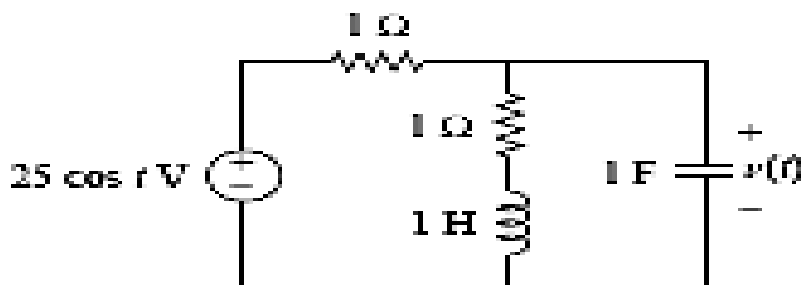
- b) Use Nodal analysis to determine the power delivered by the current source.

7 Marks

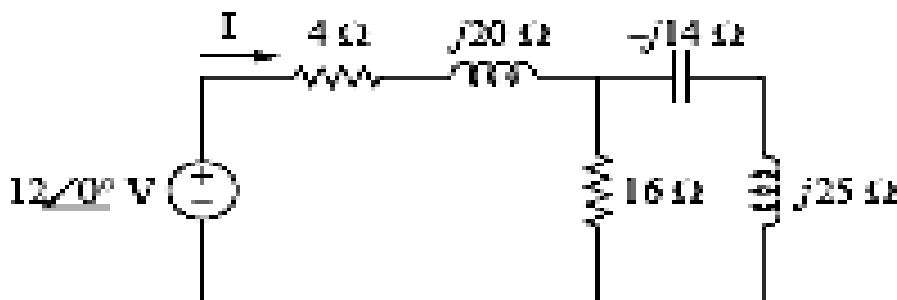


UNIT-II

- 3 a) Compute the $V(t)$, shown in figure. Also compute the power delivered by voltage source. 7 Marks

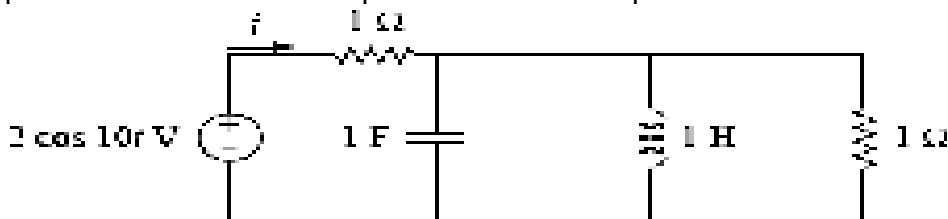


- b) Compute the circuit impedance and current in all the elements of circuit shown in figure. 7 Marks

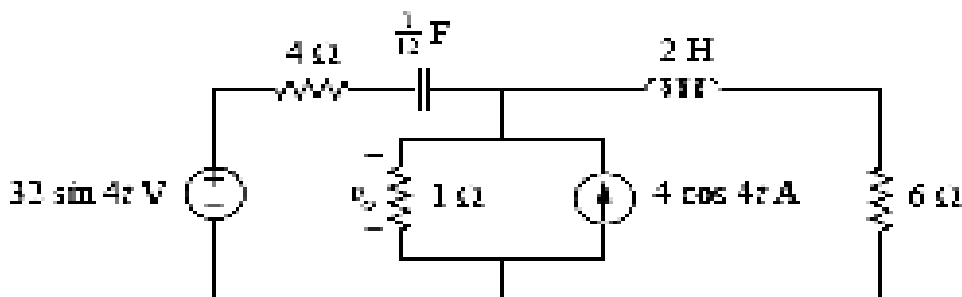


(OR)

- 4 a) Compute the current i . Also compute the current in capacitor and inductor. 7 Marks



- b) Compute the voltage " V_0 ". And also find current passing through 6Ω resistor. 7 Marks



UNIT-III

- 5 a) A 6 – pole lap – connected 250V Shunt motor has 396 armature conductors. It takes 30A on full load. The flux per pole is 0.04 webers. The armature and shunt field resistance are 0.1Ω and 200Ω respectively. Determine the speed on full load. 7 Marks

- b) Draw well labeled connection diagrams to show a separately excited, shunt, series and compound generators. 7 Marks

(OR)

- 6 a) State and explain the construction features of three phase induction motor. 7 Marks

- b) A 10 pole DC generator has per pole flux of 48 mWb and winding is connected in lap with 960 conductors. Calculate the generated EMF on open circuit when it runs at 400 r.p.m. If the armature is wave wound at what speed must the machine be driven to generate the same voltage. 7 Marks

UNIT-IV

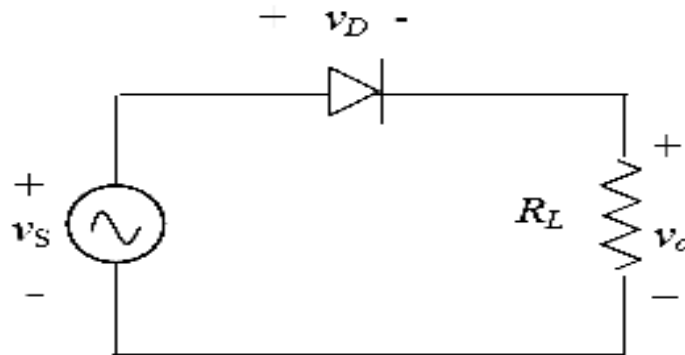
- 7 a) Classify the transducers with examples. 7 Marks
 b) State and explain the principle operation of piezoelectric transducer with neat sketch, list the applications of it. 7 Marks

(OR)

- 8 a) State the need for digital meters, list out the advantages of digital meters compare to analog meters. 7 Marks
 b) State and explain the principle operation of Hall Effect transducer and give applications for it. 7 Marks

UNIT-V

- 9 a) Explain the operation of full wave rectifier with center tap transformer with appropriate waveforms. 7 Marks
 b) A 50Ω load resistance is connected across a half wave rectifier. The input supply voltage is 230V (rms) at 50Hz. Determine the DC output (average) voltage, peak-to-peak ripple in the output voltage (V_{p-p}) and the output ripple frequency (fr). 7 Marks



(OR)

- 10 a) Explain the operation full wave bridge rectifier with wave forms of voltage across load and diodes. 7 Marks
 b) In the full-wave rectifier circuit of figure shown below, the transformer has a turns ratio of 1:2. The transformer primary winding is connected across an AC source of 230V (rms), 50Hz. The load resistor is 80Ω . For this circuit, determine the DC output voltage, peak-to-peak ripple in the output voltage and output ripple frequency. 7 Marks

