

Electric Circuits & Networks

(Code : 22330)

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(DE/EJ/ET/EN/EX/EQ/IE/IS/IC)

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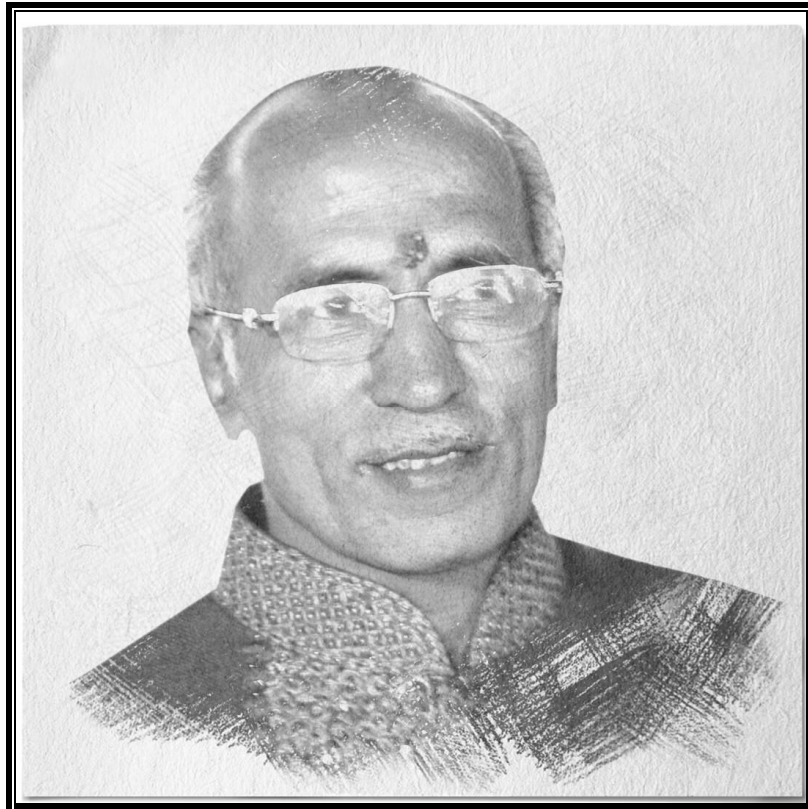
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*We dedicate this Publication soulfully and wholeheartedly,
in loving memory of our beloved founder director,
Late Shri. Pradeepji Lalchandji Lunawat,
who will always be an inspiration, a positive force and strong support
behind us.*



“My work is my prayer to God”

- Lt. Shri. Pradeepji L. Lunawat

*Soulful Tribute and Gratitude for all Your
Sacrifices, Hardwork and 40 years of Strong Vision...*

Syllabus...

Unit	Topics and Sub-topics
Unit - I : Single Phase A.C. Circuits Refer chapters 1, 2 and 3	1.1 Series AC circuits : R-L, R-C and R-L-C circuits, Impedance, Reactance, Phasor diagram, Impedance triangle, Power factor, Active (real) power, Apparent power, Reactive power, Power triangle. 1.2 AC series circuit by using complex algebra. 1.3 Parallel AC circuits, Resistance in parallel with pure inductance, Resistance in parallel with capacitance, Series combination of resistance and inductance in parallel with capacitance. 1.4 Concept of Admittance, Conductance and Susceptance. 1.5 Concept of initial and final conditions in switching circuits, Meaning of $t = 0^-$, $t = 0^+$ and $t = \infty$, R, L, and C at initial conditions, R, L, and C at final conditions.
Unit - II : Resonance in Series and Parallel Circuits Refer chapter 4	2.1 Series and parallel resonance. 2.2 Impedance and phase angle of a series and parallel resonant circuits. 2.3 Voltage and current in a series and parallel resonant circuit. 2.4 Bandwidth of RLC circuit (Series and parallel resonance). 2.5 Quality factor (Q) and its effect on bandwidth (Series and parallel resonance). 2.6 Magnification in series and parallel resonance circuits.
Unit - III : Principles of Circuit Analysis Refer chapter 5	3.1 Source transformation. 3.2 Star/delta and delta/star transformations. 3.3 Mesh analysis. 3.4 Node analysis.
Unit - IV : Network Theorems Refer chapter 6	4.1 Superposition theorem for both AC voltage and DC source. 4.2 Thevenin's theorem. 4.3 Norton's theorem. 4.4 Maximum power transfer theorem. 4.5 Reciprocity theorem. 4.6 Superposition theorem.

Unit	Topics and Sub-topics
Unit - V : Two Port Networks Refer chapter 7	5.1 Significance of two port network. 5.2 Open circuit (Z) and short circuit (Y) parameters. 5.3 Transmission (ABCD) parameter. 5.4 T and π representation of circuits. 5.5 Reciprocal and symmetrical two port network (No derivation).

□□□

Unit-I

Chapter 1 : Single Phase Series AC Circuits 1-1 to 1-38

Syllabus : Series AC circuits : R-L, R-C and R-L-C circuits, Impedance, Reactance, Phasor diagram, Impedance triangle, Power factor, Active (real) power, Apparent power, Reactive power, Power triangle, AC series circuit by using complex algebra.

1.1	Introduction	1-2	1.4.2	Voltage and Current Waveforms and Equations	1-7
1.2	Important Basic Concepts	1-2	1.4.3	Phasor Diagram	1-8
1.2.1	Phasor Representation of an Alternative Quantity	1-2	1.4.4	Impedance of the Purely Resistive Circuit	1-8
1.2.2	Phase of an Alternating Quantity	1-2	1.4.5	Average Power (P_{av})	1-8
1.2.3	Mathematical Representation of Phasor	1-4	1.4.6	Energy in Purely Resistive Circuit	1-8
1.2.4	Addition and Subtraction of Phasors (Using Rectangular Form)	1-5	1.5	Pure Inductance in AC Circuit	1-8
1.2.5	Multiplication and Division of Phasors (Using Polar Form)	1-5	1.5.1	Equations for Current i and Voltage v	1-9
1.3	Single Phase AC Circuits	1-6	1.5.2	Waveforms and Phasor Diagram	1-9
1.3.1	Reactance and Impedance	1-6	1.5.3	Power in a Purely Inductive Circuit	1-10
1.3.2	Reactance	1-6	1.5.4	Impedance of a Purely Inductive Circuit	1-10
1.3.3	Inductive Reactance (X_L)	1-6	1.6	Purely Capacitive AC Circuit	1-10
1.3.4	Capacitive Reactance (X_C)	1-6	1.6.1	Expressions for Voltage and Current	1-11
1.3.5	Impedance (Z)	1-7	1.6.2	Current and Voltage Waveforms and Phasor Diagram	1-11
1.4	Pure Resistance in AC Circuit	1-7	1.6.3	Power in Purely a Capacitive AC Circuit	1-12
1.4.1	Analysis of the Purely Resistive AC Circuit	1-7	1.6.4	Impedance of a Purely Capacitive Circuit	1-12
			1.7	Concept of Impedance and Impedance Triangle	1-12
			1.7.1	Concept of Impedance	1-12
			1.7.2	Impedance Triangle	1-12



1.8	Different Types of Power 1-13	1.10.11	Q-factor 1-18
1.8.1	Apparent Power (S) 1-13	1.11	The Series R-C Circuit 1-24
1.8.2	Real Power or True Power or Active Power (P) 1-13	1.11.1	Phasor (Vector) Diagram 1-25
1.8.3	Reactive Power or Imaginary Power (Q) 1-14	1.11.2	Impedance of RC Series Circuit 1-25
1.8.4	Power Factor 1-14	1.11.3	Impedance Triangle (Series R-C circuit) 1-25
1.8.5	Importance (Significance) of Power Factor 1-15	1.11.4	Waveforms and Expressions of Voltage and Current (Series R-C Circuit) 1-26
1.8.6	Causes and Effects of Low Power Factor 1-15	1.11.5	Average Power in Series R-C Circuit 1-26
1.8.7	Power Triangle 1-16	1.11.6	Power Triangle for R-C Series Circuit 1-26
1.9	AC Circuits with Series Elements 1-16	1.11.7	Various Powers and Power Factor 1-27
1.10	The Series R-L Circuit 1-16	1.11.8	Q Factor 1-27
1.10.1	Phasor Diagram 1-16	1.12	An R-L-C Series Circuit 1-28
1.10.2	Impedance of L-R Series Circuit 1-17	1.12.1	Importance of the Values of Reactances 1-29
1.10.3	Impedance Triangle 1-17	1.12.2	Phasor Diagrams 1-29
1.10.4	Voltage and Current Waveforms 1-17	1.12.3	Phasor Diagram for : $X_L > X_C$ 1-29
1.10.5	Average Power in Series L-R Circuit 1-18	1.12.4	Phasor Diagram for : $X_L < X_C$ 1-29
1.10.6	Power Triangle for L-R Series Circuit ... 1-18	1.12.5	Phasor Diagram for : $X_L = X_C$ 1-30
1.10.7	Apparent Power (S) 1-18	1.12.6	Impedance of Series LCR Circuit 1-30
1.10.8	Real Power or True Power or Active Power (P) 1-18	1.12.7	Impedance Triangle for an LCR Circuit 1-30
1.10.9	Reactive Power or Imaginary Power (Q) 1-18		
1.10.10	Power Factor 1-18		

1.12.8 Power Supplied to the R.L.C. Circuit1-31

1.12.9 Power Triangle1-31

1.12.10 Various Powers and Power Factors of RLC Series Circuit1-31

1.12.11 Figure of Merit or Q-factor1-32

1.13 I-Scheme Solved Examples.....1-35

1.14 MSBTE Questions and Answers1-37

1.15 I-Scheme Questions and Answers1-37

- **Review Questions1-35**

Unit-I

Chapter 2 : Single Phase AC Parallel Circuits 2-1 to 2-21

Syllabus : Parallel AC circuits, Resistance in parallel with pure inductance, Resistance in parallel with capacitance, Series combination of resistance and inductance in parallel with capacitance, Concept of Admittance, Conductance and Susceptance.

2.1 A.C. Parallel Circuit2-2

2.1.1 Two Impedances in Parallel2-2

2.2 Multiplication and Division of Impedances2-2

2.2.1 Multiplication of Impedances2-2

2.2.2 Division of Impedances2-3

2.3 Types of Parallel AC Circuits2-3

2.4 Resistance in Parallel with Pure Inductance2-3

2.4.1 Phasor Diagram2-4

2.4.2 Impedance2-4

2.4.3 Voltage and Current Waveforms2-4

2.4.4 Power Factor2-4

2.5 Resistance in Parallel with Pure Capacitance2-4

2.5.1 Phasor Diagram2-5

2.5.2 Impedance2-5

2.5.3 Voltage and Current Waveforms2-5

2.5.4 Power Factor2-5

2.6 Series Combination of R and L in Parallel with Capacitor2-6

2.6.1 Phasor Diagram2-6

2.6.2 Impedance2-6

2.6.3 Power Factor2-6

2.7 The Concept of Admittance2-10

2.7.1 Conductance and Susceptance2-11

2.7.2 Admittance Triangle2-11

2.8 Solved Examples2-14

2.9 I-Scheme Solved Examples2-20

2.10 I-Scheme Questions and Answers2-20

- **Review Questions2-19**

Unit-I

Chapter 3 : Initial & Final Conditions of Elements in a Network 3-1 to 3-6

Syllabus : Concept of initial and final conditions in switching circuits, Meaning of $t = 0^-$, $t = 0^+$ and $t = \infty$, R, L, and C at initial conditions, R, L and C at final conditions.

3.1 Concept of Initial and Final Conditions in Switching Circuits3-2

3.1.1 Concept of Initial Conditions3-2



3.1.2	Final Conditions	3-2	4.2.6	Voltage and Current	4-5
3.1.3	Meaning of $t = 0^-$, $t = 0^+$ and $t = \infty$	3-2	4.2.7	Variation of Power Factor	4-5
3.2	Initial and Final Conditions in Elements	3-3	4.2.8	The Q-Factor (Quality Factor) of a Series Resonant Circuit	4-5
3.2.1	Initial Conditions in Resistor	3-3	4.2.9	Bandwidth of a Series Resonant Circuit	4-6
3.2.2	Initial and Final Conditions in Inductor ...	3-3	4.2.10	Magnification in Series Resonant Circuit	4-7
3.2.3	Initial and Final Condition in Capacitor ...	3-4	4.2.11	Characteristics of Series Resonant Circuit	4-7
3.2.4	Equivalent Circuits	3-5	4.3	Solved Examples on Series Resonance	4-8
3.3	I-Scheme Questions and Answers	3-6	4.4	Resonance in Parallel RLC Circuit	4-11
	• Review Questions	3-6	4.4.1	Resonant Frequency (f_r)	4-12
Unit-II			4.4.2	Dynamic Impedance at Resonance (Z_D)	4-13
Chapter 4 : Resonance in Series and Parallel Circuits			4.4.3	Current and Voltage	4-13
4-1 to 4-21			4.4.4	Phase Angle of Parallel Resonant Circuit	4-14
Syllabus : Series and parallel resonance, Impedance and phase angle of a series and parallel resonant circuits, Voltage and current in a series and parallel resonant circuit, Bandwidth of RLC circuit (Series and parallel resonance), Quality factor (Q) and its effect on bandwidth (Series and parallel resonance), Magnification in series and parallel resonance circuits.			4.4.5	Why is the Parallel Circuit Called a Rejector Circuit ?	4-14
4.1	Resonance	4-2	4.4.6	Q-Factor of the Parallel Circuit	4-14
4.2	Resonance in Series RLC Circuit	4-2	4.4.7	Effect of Q on Bandwidth	4-14
4.2.1	Resonant Frequency (f_r)	4-2	4.4.8	Magnification in Parallel Resonant Circuit	4-15
4.2.2	Phasor Diagrams of RLC Series Resonant Circuit	4-3	4.4.9	Current Through C	4-15
4.2.3	Impedance at Resonance	4-4	4.4.10	Characteristics of Parallel Resonant Circuit	4-15
4.2.4	Current at Resonance	4-4			
4.2.5	Phase Angle of Series Resonant Circuit	4-5			



4.5	Solved Examples on Parallel Resonance	4-16
4.6	Comparison of Series and Parallel Resonant Circuits	4-19
4.7	I-Scheme Solved Examples.....	4-20
4.8	I-Scheme Questions and Answers	4-20
	• Review Questions	4-19

Unit-III

Chapter 5 : Principle of DC Circuit Analysis 5-1 to 5-46

Syllabus : Source transformation, Star/delta and delta/star transformations, Mesh analysis, Node analysis.

5.1	Introduction to Networks / Circuits	5-2
5.1.1	Network	5-2
5.1.2	Circuit Element	5-2
5.1.3	Concept of Open and Short Circuit	5-2
5.1.4	Branch Mesh and Node	5-2
5.1.5	Resistors in Series	5-3
5.1.6	Voltage Division Formula	5-3
5.1.7	Resistors in Parallel	5-4
5.1.8	Current Division Formula	5-4
5.2	Review of Ohm's Law	5-9
5.3	Concept of Ideal and Practical Voltage and Current Sources	5-10
5.3.1	Independent Voltage Sources	5-10
5.3.2	Current Sources	5-11
5.4	Source Transformation	5-13

5.4.1	Transformation of Voltage Source to Current Source	5-13
5.4.2	Transformation of Current Source to Voltage Source	5-13
5.4.3	Voltage Sources in Series	5-14
5.4.4	Current Sources in Parallel	5-15
5.5	Star-Delta and Delta-Star Transformation	5-17
5.5.1	The Star Network	5-17
5.5.2	The Delta Network	5-17
5.5.3	Delta-Star Transformation	5-18
5.5.4	Star to Delta Conversion	5-19
5.6	Kirchhoff's Laws	5-27
5.6.1	Kirchhoff's Current Law (KCL)	5-27
5.6.2	Node Analysis (Nodal Analysis)	5-28
5.6.3	Mesh or Loop and Sign Convention	5-32
5.6.4	Kirchhoff's Voltage Law (or Mesh or Loop Law)	5-33
5.6.5	Procedure to be Followed to Solve an Example using Kirchhoff's Laws	5-34
5.6.6	Mesh Analysis or Maxwell's Loop Current Method	5-35
5.7	MSBTE Questions and Answers	5-40
5.8	I-Scheme Solved Examples	5-41
5.9	I-Scheme Questions and Answers	5-45
	• Review Questions	5-40

Unit-IV

Chapter 6 : Network Theorems 6-1 to 6-45

Syllabus : Superposition theorem for both AC voltage and DC source. Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, Reciprocity theorem, Superposition theorem.

6.1 Introduction 6-2

6.2 Different Types of Networks 6-2

 6.2.1 Active or Passive Networks 6-2

 6.2.2 Unilateral or Bilateral Networks 6-2

 6.2.3 Linear or Non-linear Network..... 6-3

6.3 Superposition Theorem 6-3

 6.3.1 Statement of the Superposition Theorem 6-3

 6.3.2 Steps to be Followed to Apply the Superposition Theorem 6-3

 6.3.3 Examples on Superposition Theorem 6-4

 6.3.4 Superposition Theorem for AC Source ... 6-8

 6.3.5 Applications of the Superposition Theorem 6-12

 6.3.6 Drawbacks (Limitations) of the Superposition Theorem 6-12

6.4 Thevenin's Theorem 6-13

 6.4.1 Implications of Thevenin's Theorem 6-15

 6.4.2 Advantages of Thevenin's Theorem 6-15

 6.4.3 Where can't We Apply the Thevenin's Theorem ?..... 6-15

 6.4.4 Applications of the Thevenin's Theorem 6-15

 6.4.5 Drawbacks of the Thevenin's Theorem 6-15

 6.4.6 Solved Examples on Thevenin's Theorem 6-16

6.5 Norton's Theorem 6-19

 6.5.1 Steps to be Followed to Apply the Norton's Theorem 6-20

 6.5.2 Equivalence between Thevenin's and Norton's Theorems 6-20

 6.5.3 Drawbacks of Norton's Theorem 6-21

 6.5.4 Applications of the Norton's Theorem 6-21

 6.5.5 Solved Examples on Norton's Theorem 6-21

6.6 Maximum Power Transfer Theorem 6-29

 6.6.1 Condition for Maximum Power Transfer 6-29

 6.6.2 Stepwise Procedure for Maximum Power Transfer Theorem 6-30

 6.6.3 Applications of Maximum Power Transfer Theorem 6-30

6.7 Reciprocity Theorem 6-34

 6.7.1 Explanation of Reciprocity Theorem 6-34

 6.7.2 Features of the Reciprocity Theorem 6-38

6.7.3 Drawbacks of the Reciprocity Theorem 6-38

6.8 I-Scheme Solved Examples 6-39

6.9 I-Scheme Questions and Answers 6-44

• **Review Questions** **6-38**

Unit-V

Chapter 7 : Two Port Networks **7-1 to 7-15**

Syllabus : Significance of two port network, Open circuit (Z) and short circuit (Y) parameters, Transmission (ABCD) parameter, T and π representation of circuits, Reciprocal and symmetrical two port network (No derivation).

7.1 Introduction 7-2

7.2 Open Circuit Impedance Parameters (Z-Parameters) 7-2

7.3 Two Port Admittance Parameters [Short Circuit Admittance (Y) Parameters] 7-5

7.3.1 Solved Examples on Y Parameters 7-7

7.4 Transmission Parameters (ABCD Parameters) 7-8

7.4.1 Condition of Symmetry 7-9

7.4.2 Condition for Reciprocity 7-9

7.4.3 Expression of ABCD Parameters 7-9

7.4.4 Solved Examples on Transmission Parameters 7-9

7.5 T Representation of Circuits 7-10

7.5.1 Characteristic Impedance (Z_0) of Symmetrical T-Network 7-10

7.6 π Representation of Circuits 7-11

7.6.1 Characteristics Impedance 7-11

7.7 I-Scheme Solvd Examples 7-12

7.8 I-Scheme Questions and Answers 7-13

• **Review Questions** **7-12**

