

**Unit I**

**Chapter 1 : Basic Circuit Analysis & Simplification Techniques 1-1 to 1-84**

**Syllabus** : Kirchoff's current and voltage laws, Independent and dependent sources and their interconnection, Power calculations, Network analysis : Mesh, Super mesh, Node and super node analysis, Source transformation and source shifting, Network theorems : Superposition, Thevenin's, Norton's and maximum power transfer (Analysis of simple dc circuits using all above techniques and analysis of simple AC circuits using only mesh analysis).

1.1	Voltage and Current Sources .....	1-2
1.1.1	Independent Voltage Sources .....	1-2
1.1.2	Current Sources .....	1-3
1.1.3	Dependent Sources .....	1-4
1.1.4	Combination of Sources .....	1-5
1.2	Kirchoff's Laws .....	1-6
1.2.1	Kirchoff's Current Law (KCL) .....	1-7
1.3	Nodal Analysis .....	1-7
1.3.1	Supernode .....	1-8
1.4	Source Transformation Theorem for the Circuits Containing Independent Sources .....	1-13
1.4.1	Transformation of Independent Voltage Source to Independent Current Source .....	1-13
1.4.2	Transformation of Current Source to Voltage Source .....	1-14
1.4.3	Source Transformation Theorem .....	1-14
1.4.4	Source Transformation of Dependent Sources .....	1-14
1.5	Source Shifting .....	1-18
1.5.1	Voltage Source Shifting .....	1-18
1.5.2	Current Source Shifting .....	1-19
1.6	Nodal Analysis of Circuit Containing Dependent Current Sources .....	1-24
1.6.1	Solved Examples on Nodal Analysis ....	1-25
1.7	Mesh or Loop and Sign Convention .....	1-27
1.7.1	Kirchoff's Voltage Law (or Mesh or Loop Law) .....	1-29

1.7.2	Stepwise Procedure for KVL .....	1-29
1.7.3	Mesh Analysis .....	1-31
1.7.4	Supermesh .....	1-33
1.8	Mesh Analysis of Circuits Containing Dependent Sources .....	1-38
1.9	Network Theorems .....	1-47
1.10	Superposition Theorem .....	1-47
1.10.1	Statement of the Superposition Theorem .....	1-47
1.10.2	Steps to be Followed to Apply the Superposition Theorem .....	1-47
1.10.3	Examples on Superposition Theorem ..	1-48
1.11	Thevenin's Theorem .....	1-54
1.11.1	Solved Examples on Thevenin's Theorem .....	1-56
1.11.2	Methods to Calculate $Z_{TH}$ for the Network with Dependent Sources .....	1-59
1.12	Norton's Theorem .....	1-64
1.12.1	Equivalence between Thevenin's and Norton's Theorems .....	1-65
1.12.2	Solved Examples on Norton's Theorem .....	1-65
1.13	Maximum Power Transfer Theorem .....	1-74
1.13.1	Proof of Maximum Power Transfer Theorem .....	1-75
1.13.2	Corollary .....	1-76
1.13.3	Solved Examples on Maximum Power Transfer Theorem .....	1-76
1.14	Solved Examples .....	1-81
•	<b>Review Questions .....</b>	<b>1-84</b>

**Unit II**

**Chapter 2 : Transient Analysis of Basic RL, RC and RLC Circuits 2-1 to 2-32**

**Syllabus** : Initial conditions, Driven RL and RC circuits, source free RL and RC circuits, properties of exponential response, Natural and Forced response of RL and RC circuits. Introduction to driven and Source free series RLC circuit. Over damped and Under damped series RLC circuit.

2.1	Introduction .....	2-2
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2.1.1	Initial and Steady State Conditions in Elements .....	2-2	3.5	Hybrid Parameters (h-parameters) .....	3-5
2.2	Procedure for Evaluating Initial Conditions .....	2-3	3.6	Transmission Parameters (ABCD Parameters) ...	3-6
2.3	Solved Examples .....	2-3	3.7	Summary of Reciprocity and Symmetry Conditions .....	3-8
2.4	Time Domain response of First Order R-L and R-C Circuits .....	2-9	3.8	Solved Examples .....	3-8
2.4.1	Solution of First Order Linear Differential Equation .....	2-9	3.9	Inter-relationship between Parameters .....	3-22
2.5	Time Domain Response of Driven R-L Circuit ....	2-10	3.9.1	Y-parameters in Terms of Other Parameters .....	3-22
2.6	Time Domain Response of Source free R-L Circuit .....	2-11	3.9.2	Z-parameters in Terms of other Parameters .....	3-23
2.7	Time Domain Response of Driven RC Circuit ....	2-12	3.9.3	h-parameters in Terms of Other Parameters .....	3-24
2.8	Time Domain Response of Source free R-C Circuit .....	2-13	3.9.4	ABCD Parameters in Terms of Other Parameters .....	3-25
2.9	Forced and Natural Response of RL and RC Circuit .....	2-15	3.10	Summary of Inter-Relationship .....	3-26
2.10	Solved Examples .....	2-15	3.11	Solved Examples .....	3-27
2.11	Introduction to Driven and Source free Series RLC Circuit .....	2-29	3.12	Interconnection of Two Port Network .....	3-32
2.12	Source Free Response or Natural Response of Series RLC Circuit .....	2-29	3.12.1	Cascade Connection .....	3-32
2.13	DC Response or Source Driven Response of Series RLC Circuit (Second Order Network with Constant Input) .....	2-30	3.12.2	Parallel Connection .....	3-33
•	<b>Review Questions</b> .....	<b>2-31</b>	3.12.3	Series Connection .....	3-33
<b>Unit III</b>			3.13	Applications of Laplace Transform to Circuit Analysis .....	3-34
<b>Chapter 3 : Two Port Network Parameters and Functions</b>			3.13.1	Laplace Transform .....	3-34
<b>3-1 to 3-50</b>			3.13.2	Useful Laplace Transforms .....	3-34
<b>Syllabus</b> : Terminal characteristics of network, Z, Y, h, ABCD parameters ; Reciprocity and symmetry conditions, Applications of the parameters. Application of laplace transforms to circuit analysis, Network functions for one port and two port networks, Poles and zeros of network functions and network stability.			3.13.3	Equivalent Circuits .....	3-35
3.1	Introduction .....	3-2	3.14	Network Functions for One Port and Two Port Networks .....	3-35
3.2	Two Port Parameters .....	3-2	3.15	Solved Examples .....	3-37
3.3	Short Circuit Admittance Parameters (Y-parameters) .....	3-3	3.16	Poles and Zeros of Network Function .....	3-39
3.4	Open Circuit Impedance Parameters (z-parameters) .....	3-4	3.16.1	Restrictions on Pole and Zero Locations for Driving Point Functions .....	3-40
			3.16.2	Restrictions on Pole and Zero Locations for Transfer Function .....	3-40
			3.17	Network Stability .....	3-40
			3.18	Solved Examples .....	3-42
			•	<b>Review Questions</b> .....	<b>3-49</b>

**Unit IV****Chapter 4 : DC Machines****4-1 to 4-72**

**Syllabus :** Construction, Working principle, Derivation of EMF equation, Types, Voltage equation of DC generator, Working principle, Derivation of torque equation, Types, Voltage equation and speed equation of DC motor, Basic characteristics and different methods of speed control of DC shunt and DC series motors, Power flow diagram of DC motor, Numericals on speed and torque, Need of starters, Three point and four point starter for DC shunt motor, Applications of DC Motors, Permanent Magnet DC motors (PMDC) : Construction, Working and applications.

4.1	Introduction .....	4-3	4.10.1	Condition for Maximum Efficiency .....	4-13
4.2	Types of DC Machines .....	4-3	4.11	Types of DC Generators .....	4-13
4.2.1	Windings in a DC Machine .....	4-3	4.11.1	Symbolic Representation of a Generator .....	4-14
4.3	Principle of Operation of a DC Generator .....	4-3	4.12	Separately Excited Generator .....	4-14
4.3.1	Practical DC Generator .....	4-4	4.12.1	Current and Voltage Relations of a Separately Excited DC Generators .....	4-15
4.4	Single Turn Alternator .....	4-4	4.12.2	Magnetization Characteristics (Open Circuit Characteristics) .....	4-16
4.4.1	Generation of AC Voltage .....	4-5	4.12.3	Characteristics of dc Generators .....	4-17
4.5	Elementary DC Generator .....	4-6	4.12.4	Characteristics of a Separately Excited Generator .....	4-17
4.5.1	Role of Commutator .....	4-6	4.13	Self Excited Generators .....	4-18
4.6	Construction of a DC Machines .....	4-7	4.14	Shunt Generator .....	4-18
4.6.1	Important Parts of a DC Generator .....	4-7	4.14.1	Voltage and Current Relations .....	4-19
4.6.2	Yoke .....	4-7	4.14.2	Load Characteristics .....	4-19
4.6.3	Poles, Pole Shoe and Pole Core .....	4-7	4.14.3	Voltage Build Up In a Shunt Generator .....	4-19
4.6.4	Field Winding ( $F_1 - F_2$ ) .....	4-8	4.14.4	Critical Field Resistance .....	4-20
4.6.5	Armature Core .....	4-8	4.14.5	Critical Speed .....	4-20
4.6.6	Armature Winding . .....	4-8	4.15	Series Generator .....	4-21
4.6.7	Commutator .....	4-9	4.15.1	Armature Circuit Equations .....	4-21
4.6.8	Brushes .....	4-9	4.15.2	Load Characteristics .....	4-22
4.7	Types of Armature Windings .....	4-10	4.16	Compound DC Generators .....	4-23
4.7.1	Lap Winding .....	4-10	4.16.1	Long Shunt Compound Generator .....	4-23
4.7.2	Wave Winding .....	4-10	4.16.2	Short Shunt Compound DC Generator .....	4-24
4.8	Comparison of Lap and Wave Windings .....	4-11	4.17	Applications of Different Types of Generators ....	4-25
4.9	E.M.F. Equation of a DC Generator .....	4-11	4.18	DC Motor .....	4-25
4.9.1	Solved Examples .....	4-11	4.18.1	Construction of a DC Motor .....	4-26
4.10	Losses in a Generator and Efficiency .....	4-13	4.18.2	Principle of Operation of a DC Motor ...	4-26
			4.18.3	Direction of Rotation of the Motor .....	4-26
			4.18.4	Back EMF .....	4-27
			4.19	Voltage Equation of a DC Motor .....	4-27
			4.20	Power Equation of a DC Motor .....	4-28
			4.21	Torque Equation of a DC Motor .....	4-29



4.21.1	Power Balance .....	4-29	4.28.1	Shunt Motor Applications .....	4-42
4.21.2	Linear Magnetization .....	4-29	4.28.2	Series Motor Applications .....	4-43
4.21.3	Circuit Model of a DC Motor .....	4-29	4.28.3	Cumulative Compound Motor Applications .....	4-43
4.21.4	Various Types of Torques in DC Motor .....	4-30	4.28.4	Differential Compound Motors Applications .....	4-43
4.21.5	Effect of Load on the DC Motor Operation .....	4-31	4.29	Solved Examples .....	4-43
4.22	Types of DC Motors (Classification) .....	4-32	4.30	Speed Control Methods .....	4-50
4.22.1	Separately Excited DC Motor .....	4-32	4.30.1	Speed Control of Separately Excited DC Motor .....	4-51
4.22.2	DC Shunt Motor .....	4-33	4.31	Speed Control of DC Shunt Motor .....	4-51
4.22.3	DC Series Motor .....	4-33	4.31.1	Flux Control Method for Speed Control .....	4-51
4.23	DC Compound Motors .....	4-34	4.31.2	Rheostatic Control or Armature Voltage Control Technique .....	4-52
4.23.1	Long Shunt Compound Motor .....	4-34	4.31.3	Armature Voltage Control using a Potential Divider .....	4-53
4.23.2	Short Shunt Compound DC Motor .....	4-35	4.31.4	Applied Voltage Control of a DC Shunt Motor .....	4-54
4.23.3	Cumulative Compound DC Motors .....	4-35	4.31.5	Ward Leonard Method for Speed Control .....	4-55
4.23.4	Differential Compound DC Motors .....	4-36	4.31.6	Comparison of Rheostatic Control and Field Control .....	4-55
4.24	Torque and Speed Equations .....	4-36	4.32	Speed Control of DC Series Motor .....	4-58
4.24.1	Torque Equations .....	4-36	4.32.1	Flux Control for DC Series Motors .....	4-58
4.24.2	Speed Equations .....	4-36	4.32.2	Field Diverter Method .....	4-58
4.24.3	Speed Regulation .....	4-37	4.32.3	Armature Diverter Method .....	4-59
4.25	Various Characteristics of a DC Motor .....	4-38	4.32.4	Tapped Field Method .....	4-60
4.26	Characteristics of DC Shunt Motor .....	4-39	4.32.5	Series and Parallel Connection of Field .....	4-60
4.26.1	Torque - Armature Current Characteristics .....	4-39	4.32.6	Rheostatic Control (Armature Voltage Control) .....	4-60
4.26.2	Speed-Armature Current Characteristics .....	4-40	4.32.7	Applied Voltage Control .....	4-61
4.26.3	Speed-Torque Characteristics .....	4-40	4.32.8	Solved Examples .....	4-61
4.27	Characteristics of DC Series Motor .....	4-41	4.33	Starters .....	4-63
4.27.1	Torque - Armature Current Characteristics .....	4-41	4.33.1	Need of a Starter .....	4-63
4.27.2	Speed-Armature Current Characteristics .....	4-41	4.33.2	Principle of Starters .....	4-63
4.27.3	Speed-Torque Characteristics .....	4-42	4.33.3	Types of Starters .....	4-64
4.27.4	Why Series Motor is Never Started on No Load ? .....	4-42			
4.28	DC Motor Applications .....	4-42			



4.34	Three Point Starter (For DC Shunt Motor) .....	4-64	5.4	Types of Induction Motor .....	5-7
4.34.1	Function of NVC or Hold on Coil .....	4-65	5.4.1	Wound Rotor or Slipring Type Rotor .....	5-8
4.34.2	Function of the Overload Coil .....	4-66	5.4.2	Squirrel Cage Rotor .....	5-8
4.34.3	Drawback of 3-point Starter .....	4-66	5.4.3	Comparison of Two Types of Rotor .....	5-9
4.35	Four Point Starter (For Shunt Motor) .....	4-66	5.5	Principle of Operation .....	5-9
4.35.1	Disadvantages of Four Point Starter .....	4-67	5.5.1	Direction of Rotation .....	5-11
4.35.2	Motor Protection by Three Point Starter .....	4-67	5.5.2	Why an I.M. can Never Run at $N_s$ ? .....	5-11
4.36	Losses in D.C. Machines .....	4-67	5.6	Effect of Loading on Induction Motor .....	5-11
4.36.1	Copper or Electrical Losses .....	4-68	5.7	Effect of Slip on Rotor Parameters .....	5-11
4.36.2	Core Losses or Iron Losses .....	4-68	5.7.1	Synchronous Speed ( $N_s$ ) .....	5-11
4.36.3	Brush Losses .....	4-68	5.7.2	Slip $s$ .....	5-11
4.36.4	Mechanical Losses .....	4-68	5.7.3	Frequency of Rotor Induced emf ( $f_r$ ) (Slip Frequency) .....	5-12
4.36.5	Stray Load Losses .....	4-68	5.7.4	Induced Voltage in the Rotor .....	5-12
4.36.6	Power Flow Diagram .....	4-68	5.7.5	Rotor Resistance ( $R_2$ ) .....	5-12
4.37	Efficiency of D.C. Machine .....	4-68	5.7.6	Rotor Reactance ( $X_2$ ) .....	5-12
4.38	Permanent Magnet DC Motors (PMDC Motor) .....	4-71	5.7.7	Rotor Impedance .....	5-13
4.39	University Questions and Answers .....	4-72	5.7.8	Rotor Power Factor .....	5-13
	• <b>Review Questions</b> .....	4-72	5.7.9	Rotor Current .....	5-13
<b>Unit V</b>			5.8	Torque Equation of Induction Motor .....	5-17
<b>Chapter 5 : Three Phase Induction Motors 5-1 to 5-56</b>			5.8.1	Full Load Torque .....	5-18
<b>Syllabus</b> : Three phase induction motors, Construction, Working principle, Types, Concept of slip, Effect of slip on rotor parameters, Derivation of torque equation, Condition for maximum torque, Torque ratios, Torque-slip characteristics, Power flow diagram with numerical, Necessity of starters : Study of DOL and star-delta starters, Speed control using $V/f$ method, Applications.			5.8.2	Starting Torque .....	5-18
5.1	Introduction .....	5-2	5.8.3	Condition For Maximum Torque .....	5-19
5.1.1	Advantages of Induction Motors Over DC Motors .....	5-2	5.8.4	Expression For Maximum Torque ( $T_m$ ) .....	5-19
5.1.2	Disadvantages of Induction Motors .....	5-2	5.9	Torque Slip Characteristics of Induction Motor .....	5-19
5.1.3	Applications of Induction Motor .....	5-2	5.9.1	Other Regions of Operation .....	5-21
5.2	Construction of 3-Phase Induction Motor .....	5-2	5.10	Effect of Change in Supply Voltage on Torque Slip Characteristics .....	5-22
5.2.1	Table of Parts and their Functions .....	5-4	5.10.1	Effect of Change in Rotor Resistance on Torque Developed .....	5-22
5.3	Rotating Magnetic Field (RMF) .....	5-4	5.11	Effect of Changes in Supply Frequency on Torque and Speed .....	5-23
5.3.1	Production of RMF .....	5-5	5.12	Various Torque Ratios for an Induction Motor .....	5-23
5.3.2	Speed of RMF .....	5-7	5.12.1	Starting Torque to Maximum Torque Ratio .....	5-23
5.3.3	Direction of RMF .....	5-7	5.12.2	Ratio of Full Load Torque and Maximum Torque .....	5-24
			5.13	Losses in Induction Motor .....	5-30
			5.13.1	Variable Losses .....	5-31
			5.13.2	Constant Losses .....	5-31



5.13.3	Power Flow Diagram of Induction Motor .....	5-31
5.14	Efficiency of an Induction Motor .....	5-34
5.15	Need of Starter for Induction Motor .....	5-47
5.15.1	Types of Starters .....	5-48
5.15.2	Star-Delta Starter .....	5-48
5.15.3	Rotor Resistance Starter .....	5-49
5.15.4	Direct On Line (DOL) Starter .....	5-50
5.16	Speed Control of Three Phase Induction Motors .....	5-51
5.16.1	Stator Voltage Control .....	5-52
5.16.2	Stator Frequency Control or V/f Control .....	5-53
5.17	Reversal of Direction of Rotation .....	5-54
5.18	Industrial Applications of Induction Motors .....	5-55
5.18.1	Applications of Squirrel Cage Motors ...	5-55
5.18.2	Applications of Slipring Induction Motors .....	5-55
	• <b>Review Questions</b> .....	<b>5-55</b>

### Unit V

#### Chapter 6 : Single Phase Induction Motor 6-1 to 6-10

**Syllabus** : Construction, Working principle, Types and applications.

6.1	Introduction .....	6-2
6.2	Single Phase Induction Motors .....	6-2
6.2.1	Construction of Single Phase Induction Motors .....	6-2
6.2.2	Double Revolving Field Theory .....	6-2
6.2.3	Torque Speed Characteristics of Single Phase Induction Motor .....	6-3
6.2.4	Split Phasing Principle of Starting .....	6-4
6.2.5	Types of Single Phase Induction Motors .....	6-4
6.3	Split Phase Induction Motor .....	6-4
6.3.1	Torque Speed Characteristics .....	6-5
6.3.2	Applications of Split Phase Induction Motor .....	6-5
6.3.3	Possible Reasons for Slow Speed .....	6-5
6.4	Capacitor Start Induction Motors .....	6-5
6.4.1	Phasor Diagram .....	6-6
6.4.2	Torque Speed Characteristics .....	6-6
6.5	Capacitor Start Capacitor Run Motor .....	6-6

6.5.1	Advantages and Disadvantages .....	6-7
6.5.2	Applications .....	6-7
6.6	Shaded Pole Induction Motors .....	6-8
6.6.1	Comparison of Polyphase I.M. and Single Phase I.M. ....	6-9
6.6.2	Comparison of Resistance Split Phase Motor and Capacitor Split Phase Motor ..	6-9
	• <b>Review Questions</b> .....	<b>6-9</b>

### Unit VI

#### Chapter 7 : Special Purpose Motors 7-1 to 7-22

**Syllabus** : BLDC motor : Types, Construction, Working principle, Bipolar control circuit, Torque speed characteristics and applications, Stepper motor : Types, Construction, Working principle, Different modes of operation, Control circuit, Applications.

7.1	Brushless DC Motor (BLDC Motor) .....	7-2
7.1.1	Advantages of BLDC Motor Over DC Motor .....	7-2
7.1.2	Types of BLDC Motor .....	7-2
7.2	Unipolar (Half Wave) BLDC Motor .....	7-3
7.3	Principle of Operation .....	7-4
7.3.1	Speed Variation of BLDC Motor .....	7-5
7.3.2	Torque Control .....	7-5
7.4	A Bipolar (Full Wave) BLDC Motor .....	7-5
7.5	Characteristics of BLDC Motor .....	7-6
7.6	Advantage, Disadvantages and Applications .....	7-7
7.6.1	Advantages of BLDC Motors .....	7-7
7.6.2	Disadvantages of BLDC Motors .....	7-7
7.6.3	Applications of BLDC Motors .....	7-7
7.7	Comparison of BLDC Motor and DC Motor .....	7-7
7.8	Stepper Motor .....	7-8
7.8.1	Advantages of Stepper Motors .....	7-8
7.9	Classification of Stepper Motors .....	7-9
7.9.1	Types of Stepper Motors .....	7-9
7.10	Variable Reluctance (V.R.) Stepper Motor .....	7-9
7.11	Permanent Magnet Step Motors .....	7-11
7.11.1	Advantages of P.M. Motors .....	7-12
7.11.2	Drawbacks .....	7-12
7.11.3	Applications .....	7-12
7.11.4	Comparison of V.R. Motor and P.M. Motor .....	7-12



7.12 Hybrid Step Motors .....7-13	7.20 Closed Loop Control of Stepper Motors ..... 7-21
7.12.1 Advantages of Hybrid Stepper Motors .....7-14	7.20.1 Applications of Stepper Motor ..... 7-22
7.13 Important Definitions Related to Stepper Motors .....7-14	7.20.2 Limitations of Stepper Motor ..... 7-22
7.14 Stepper Motor Characteristics .....7-15	• <b>Review Questions</b> ..... <b>7-22</b>
7.14.1 Static Characteristics .....7-15	
7.14.2 Dynamic Characteristics of Stepper Motor .....7-15	
7.15 Modes of Excitation in Step Motors .....7-16	
7.15.1 Two Phase Excitation (Full step mode) .....7-16	
7.15.2 Half Step Mode of Excitation .....7-16	
7.15.3 Microstepping Mode of Operation .....7-17	
7.16 Drive Requirements for a Step Motor .....7-17	
7.17 Unipolar Voltage Drive for V.R. Motor .....7-18	
7.18 Bipolar Drive for P. M. Motors .....7-20	
7.19 Open Loop Control of Stepper Motor .....7-21	

**Unit VI****Chapter 8 : Electric Vehicles 8-1 to 8-6**

**Syllabus** : Introduction to electric vehicle, Block diagram, Case study of any one electric vehicle with respect to specifications of motor, Battery and controller.

8.1 Introduction ..... 8-2	
8.1.1 Need of EVs ..... 8-2	
8.2 Block Diagram of EV ..... 8-2	
8.3 Advantages of EVs ..... 8-4	
8.4 Disadvantages of EVs ..... 8-4	
8.5 Case Study : Study of an EV ..... 8-4	
• <b>Review Questions</b> ..... <b>8-5</b>	

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