NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-I

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Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Magnetic Circuit and Transformer
Lecture 2 - Magnetising Current from B-H Curve
Lecture 3 - Ideal Transformer, Dot Convention and Phasor Diagram
Lecture 4 - Operation of Ideal Operation with Load Connected
Lecture 5 - Equivalent Circuit of Ideal Transformer
Lecture 6 - Rating of Single Phase Transformer
Lecture 7 - Transformer with Multiple Coils
Lecture 8 - Modelling of Practical Transformer - I
Lecture 9 - Modelling of Practical Transformer - II
Lecture 10 - Modelling of Practical Transformer - III
Lecture 11 - Core Loss - Eddy Current Loss
Lecture 12 - Factors on Eddy Current Loss Depends
Lecture 13 - Hysteresis Loss
Lecture 14 - Exact Equivalent Circuit
Lecture 15 - Approximate Equivalent Circuit
Lecture 16 - Determination of Equivalent Circuit Parameters - No Load Test
Lecture 17 - Short Circuit Test
Lecture 18 - Choosing Sides to Carry Out O.C / S.C Test
Lecture 19 - Efficiency of Transformer - Losses
Lecture 20 - Efficiency (Continued...)
Lecture 21 - Condition for Maximum Efficiency When Load Power Factor Constant
Lecture 22 - Family of Efficiency Curve at Various Power Factor and Energy Efficiency
Lecture 23 - Load Description and Energy Efficiency
Lecture 24 - Regulation
Lecture 25 - Regulation
Lecture 26 - Auto Transformer - Introduction
Lecture 27 - AutoTransformer versus Two Winding Transformer
Lecture 28 - AutoTransformer versus Two Winding Transformer (Continued...)
Lecture 29 - Numerical Problems on Ideal Auto Transformer

Lecture 30 - Two Winding Transformer Connected as Auto Transformer
Lecture 31 - Practical Auto Transformer
Lecture 32 - Equivalent Circuit of an Auto Transformer
Lecture 33 - Polarity Test and Sumpner Test
Lecture 34 - 3 Phase Transformer Using 3 Single Phase Transformer
Lecture 35 - Various Connections of 3-Phase Transformer - I
Lecture 36 - Various Connections of 3-Phase Transformer - II
Lecture 37 - Vector Group of 3-Phase Transformer
Lecture 38 - Vector Group (Continued...)
Lecture 39 - Open Delta Connection
Lecture 40 - 3-Phase Cone Type and Shell Type Transformer
Lecture 41 - Zig Zag Connection
Lecture 42 - Effect 3rd Harmonic Exciting Current and Flux
Lecture 43 - Choosing Transformer Connection
Lecture 44 - Choosing Transformer Connection (Continued...)
Lecture 45 - Phase Conversion using Transformer
Lecture 46 - Scott Connection (Continued...)
Lecture 47 - 3 Phase to 6 Phase Conversion O.C / S.C Test on 3 Phase Transformer
Lecture 48 - Parallel Operation of Transformers - I
Lecture 49 - Parallel Operation of Transformers - II
Lecture 50 - Parallel Operation of Transformers - III
Lecture 51 - Specific Magnetic and Electric Loadings
Lecture 52 - ooling of Transformer and Fillings of Transformer
Lecture 53 - Output Equation of 3- Phase Transformer
Lecture 54 - Introduction to D.C Machine
Lecture 55 - Single Conductor D.C Generator / Motor Operation
Lecture 56 - Homopolar D.C Generator
Lecture 57 - Homopolar D.C Motor
Lecture 58 - Introduction to Rotating D.C Machines
Lecture 59 - Armature Winding of D.C Machine - I
Lecture 60 - Armature Winding of D.C Machine - II
Lecture 61 - Armature Winding of D.C Machine - III
Lecture 62 - Generated Voltage Across the Armature
Lecture 63 - Electromagnetic Troque in D.C Machine
Lecture 64 - Generator and Motor Operation - Basics
Lecture 65 - O.C.C and Load Characteristic of Separately Excited Generators
Lecture 66 - Voltage Build Up in Shunt Generator
Lecture 67 - Load Characteristic of Shunt Generator
Lecture 68 - Qualitative Discussion on Armature Reaction

Lecture 69 - Ill Effects of Armature Reaction
Lecture 70 - Compensating and Interpoles
Lecture 71 - Armature Reaction (Continued...)
Lecture 72 - Field Flux Density, Armature Flux Density and Resultant Field Distribution
Lecture 73 - Field Patterns for Both Motor and Generators
Lecture 74 - Demagnetising and Cross Magnetising mmf for Brush Shifted Machine
Lecture 75 - Calculation of Compensating, Interpole and Series Field Turns
Lecture 76 - Estimating Armature and Field Resistance from its Rating
Lecture 77 - Power Flow Diagram, Rotational Loss
Lecture 78 - Shunt Motor
Lecture 79 - Starting of D.C Motor - 3-Point Starter
Lecture 80 - Speed Control of Shunt Motor - I
Lecture 81 - Speed Control of Shunt Motor - II
Lecture 82 - Speed Control of Shunt Motor - III
Lecture 83 - Field Control (Continued...)
Lecture 84 - D.C Motor Braking
Lecture 85 - Introduction to Series Motor
Lecture 86 - Series Motor Characteristics
Lecture 87 - Series Motor Speed Control
Lecture 88 - Universal Motor
Lecture 89 - Swinburne Test
Lecture 90 - Hopkinson Test
Lecture 91 - Efficiency Calculation
Lecture 92 - Field Test on D.C Series Motor
Lecture 93 - Simplex Wave winding
Lecture 94 - Wave Winding (Continued...)