Discipline: Electrical Engineering	SESSION-Winter	Name of the Teaching Faculty: Shri Deepak Patra, Lect.(S-II), Electrical Engg
Subject: TH:4- DC MACHINES AND TRANSFORMERS (DCMT)	No. of Days/week Class Allotted:45	Semester- 3 RD
Week	Class Day	Theory Topics
1 st	1 st	DC Generators 1.1 D.C. generator: construction, parts, materials and their functions
	2 nd	1.2 Principle of operation of DC generator 1.2.1 Fleming's right hand rule
	3 rd	1.2.2 Derive the emf equation of DC Generator
	1 st	1.2.3 Schematic diagrams of different types of DC generator
	2 nd	1.2.4 Armature reaction
2 nd	3 rd	1.2.5 Commutation
	1 st	1.2.6 Applications of D.C. generators
3 rd	2 nd	D.C. Motors 2.1 D.C. motor: Types of DC motors
	3 rd	2.1.1 Fleming's left hand rule 2.1.2 Principle of operation of Back e.m.f. and its significance
	1 st	2.1.3 Voltage equation of DC motor
	2 nd	2.1.4 Torque and Speed; Armature torque, Shaft torque,
4 th	3 rd	BHP, Brake test
4	1 st	losses, efficiency
5 th	2 nd	Single Phase Transformers 3.1 Types of transformers: Shell type and core type
	3 rd	3.2 Construction: Parts and functions

amorphous cores 2nd 3.4 Transformer: Principle of operation 3rd 3.5 EMF equation of transformer: Derivation, Voltage transformation ratio 3rd 3.6 Significance of transformer ratings 3.7 Transformer No-load and on-load phasor diagram, Leakage reactance 2nd 3.8 Equivalent circuit of transformer: Equivalent resistance and reactance 3rd 3.9 Voltage regulation and Efficiency: Direct loading 1rd OC/SC method, 2nd All day efficiency 3rd Three Phase Transformers 4.1 Bank of three single phase transformers, (Y-Y,Δ-Δ,Δ-Y, Y-Δ) 4.2 Single unit of three phase transformer 4.3 Distribution and Power transformers: Construction and cooling, 2nd 4.4 Criteria for selection of distribution transformer, and power transformer. 3rd 4.5 Need of parallel operation of three phase transformer 4.6 Conditions for parallel operation. 1rd 4.7 Polarity tests on mutually inductive coils and single phase transformers 5.1 Single phase autotransformers: Construction, working and applications. 1rd 5.1 three phase autotransformers: Construction, working and applications.		1 st	3.3 Materials used for different parts: CRGO, CRNGO, HRGO,
3.4 Transformer: Principle of operation	6 th	1	
1st 3.6 Significance of transformer ratings 3.7 Transformer No-load and on-load phasor diagram, Leakage reactance 3rd 3.8 Equivalent circuit of transformer: Equivalent resistance and reactance 3rd 3.9 Voltage regulation and Efficiency: Direct loading 1st OC/SC method, 2rd All day efficiency 3rd Three Phase Transformers 4.1 Bank of three single phase transformers, (Y-Y,Δ-Δ,Δ-Y, Y-Δ) 1st 4.2 Single unit of three phase transformers: Construction and cooling, 3rd 4.4 Criteria for selection of distribution transformer, and power transformer. 3rd 4.5 Need of parallel operation of three phase transformer 4.6 Conditions for parallel operation. 1st 4.7 Polarity tests on mutually inductive coils and single phase transformers 2rd 4.8 Polarity test, Phasing out test on Three-phase transformer 5.1 Single phase autotransformers: Construction, working and applications. 1st 5.1 three phase autotransformers: Construction, working and applications. 5.2 Isolation transformer: Constructional Features	0	2 nd	3.4 Transformer: Principle of operation
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	1 st	Discussion of probable questions and answers-1
	2 nd	Discussion of probable questions and answers-2
12 th	3 rd	Discussion of probable questions and answers-3
	1 st	Discussion of probable questions and answers-4
	2 nd	Discussion of probable questions and answers-5
13 th	3 rd	Discussion of probable questions and answer -6
	1 st	Discussion of probable questions and answers-7
14 th	2 nd	Discussion of probable questions and answers-8
	3 rd	Discussion of probable questions and answers-9
	1 st	Discussion of probable questions and answers-10
	2 nd	Discussion of probable questions and answers-11
15 th	3 rd	Discussion of probable questions and answers-12