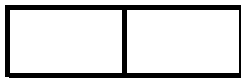


Discipline -Electrical	Semester- 4 th	Semester :16/01/2024 – 26/04/2024 No of Weeks-1
SUBJECT- . ENERGY CONVERSION – I	Theory periods: 4P / week Tutorial: 1 P / week	Name of the Teaching Faculty-Mrs. Damayanti Bhatt
WEEK	DAY	TOPICS
1st	16/01/2024(1 hour)	1.D.C GENERATOR 1.1. Operating principle of generator
	17/01/2024(2 hour)	Constructional features of DC machine. 1.2.1. Yoke, Pole & field winding, Armature, Commutator. 1.2.2. Armature winding, back pitch, Front pitch, Resultant pitch and commutator-pitch
	19/01/2024(1hour)	1.2.3. Simple Lap and wave winding, Dummy coils Revision and doubt clearing
2nd	22/01/2024(1 hour)	1.3. Different types of D.C. machines (Shunt, Series and Compound)
	24/01/2024(2 hour)	1.3. Different types of D.C. machines (Shunt, Series and Compound) 1.4. Derivation of EMF equation of DC generators. (Solve problems)
3rd	29/01/2024(1 hour)	1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.
	30/01/2024(1 hour)	1.6. Armature reaction in D.C. machine
	31/01/2024(2 hour)	1.6. Armature reaction in D.C. machine 1.7. Commutation and methods of improving commutation.
	02/02/2024(1 hour)	1.7.1. Role of inter poles and compensating winding in commutation
4th	05/02/2024(1 hour)	1.8. Characteristics of D.C. Generators
	06/02/2024(1 hour)	1.8. Characteristics of D.C. Generators 1.9. Application of different types of D.C. Generators.
	07/02/2024(2 hour)	1.10. Concept of critical resistance and critical speed of DC shunt genera 1.11. Conditions of Build-up of emf of DC generator.
	09/02/2024(1 hour)	1.12. Parallel operation of D.C. Generators. 1.13. Uses of D.C generators
	12/02/2024(1 hour)	D. C. MOTORS2.1. Basic working principle of DC motor
5th	13/02/2024(1 hour)	2.2. Significance of back emf in D.C. Motor

	16/02/2024(1 hour)	2.3. Voltage equation of D.C. Motor and condition for maximum power output(simple problems)
6th	19/02/2024(1 hour)	2.4. Derive torque equation (solve problems)
	20/02/2024(1 hour)	2.4. Derive torque equation (solve problems)
	21/02/2024(2hour)	2.5. Characteristics of shunt, series and compound motors and their application
	23/02/2024(1 hour)	2.5. Characteristics of shunt, series and compound motors and their application
7th	26/02/2024(1 hour)	2.6. Starting method of shunt, series and compound motors.
	27/02/2024(1 hour)	2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
	28/02/2024(2 hour)	2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems
	01/03/2024(1 hour)	2.8. Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method
8th	04/03/2024(1hour)	2.8. Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method
	06/03/2024(2 hour)	2.10. Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems)
		2.11. Losses, efficiency and power stages of D.C. motor(solve numerical problems)
9th	11/03/2024(1hour)	2.12. Uses of D.C. motors Revision of DC Motors
		3. SINGLE PHASE TRANSFORM
		3.1 Working principle of transformer ER
	12/03/2024(1hour)	3.2 Constructional feature of Transformer.
		3.2.1 Arrangement of core & winding in different types of transformer
	13/03/2024(2hour)	3.2.2 Brief ideas about transformer accessories such as conservator, tank, breather, and explosion vent etc.
		3.2.3 Explain types of cooling methods
15/03/2024(1hour)	3.3 State the procedures for Care and maintenance	
	3.4 EMF equation of transformer	
10th	18/03/2024(1hour)	Numericals on EMF equation of transformer
	19/03/2024(1hour)	3.5 Ideal transformer voltage transformation ratio
	20/03/2024(2hour)	3.6 Operation of Transformer at no load, on load with phasor diagram
	22/03/2024(1hour)	3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer
		3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer

11th	27/03/2024(2hour)	3.8 To draw phasor diagram of transformer on load, with winding Resistance and Magnetic leakage with using upf, leading pf and lagging pf load
12th	02/04/2024(1hour)	3.9 To explain Equivalent circuit and solve numerical problems.
	03/04/2024(2hour)	3.10 Approximate & exact voltage drop calculation of a Transformer
	05/04/2024(1hour)	3.10 Approximate & exact voltage drop calculation of a Transformer
13th	08/04/2024(1hour)	3.11 Regulation of transformer. 3.12 Different types of losses in a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)
	09/04/2024(1hour)	3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)
	10/04/2024(2 hour)	3.14 Explain All Day Efficiency (solve problems)
	12/04/2024(1hour)	3.15 Determination of load corresponding to Maximum efficiency
14th	15/04/2024(1hour)	4. AUTO TRANSFORMER
		4.1. Constructional features of Auto transformer
		4.2. Working principle of single phase Auto Transformer.
	16/04/2024(1hour)	4.3. Comparison of Auto transformer with an two winding transformer (saving of Copper).
	19/04/2024(1hour)	4.4. Uses of Auto transformer
4.5. Explain Tap changer with transformer (on load and off load condition)		
15th	22/04/2024(1hour)	5. INSTRUMENT TRANSFORMERS
		1.1 Explain Current Transformer and Potential Transformer 1.2 Define Ratio error, Phase angle error, Burden.
	23/04/2024(1hour)	1.3 Uses of C.T. and P.T.
	24/04/2024(2hour)	1.3 Uses of C.T. and P.T.
	26/04/2024(1hour)	Revision



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