Q.P. Code: 16EE215 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Regular & Supplementary Examinations May 2019

ELECTRICAL MACHINES - II

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	With neat diagram explain the constructional details of Single Phase Transformer.	8M
	b	A 230/2300V transformer takes a no load current of 6.5A and absorbs 187W. If the resistance of primary is 0.06Ω, find (a) Core loss (b) no load power factor (c) active component of current and (d) magnetizing current.	4M

OR

2	**a**	With relevant phasor diagrams, explain the operation of a practical single phase transformer under no load condition.	7M
	b	Write short notes on All day efficiency	5M

UNIT-II

3	**a**	A 40KVA transformer has iron loss of 450W and full load copper loss of 850W. If the power factor of the load is 0.8 lagging. Calculate (i) Full load efficiency	6M
	b	Explain the procedure for conducting Separation of losses test with neat diagram	6M

OR

4	**a**	Describe the Parallel operation of transformers with unequal voltage ratios.	6M
	b	Draw and explain the equivalent circuit of an Auto transformer.	6M

UNIT-III

5	**a**	Draw and explain Y-Δ & Δ - Y Connection diagram of three-phase transformer	7M
	b	Write short notes on third harmonics in phase voltages.	5M

OR

6	**a**	Explain the principle of operation of an Induction motor.	7M
	b	A 4 pole, 3-phase induction motor operates from a supply whose frequency is 50Hz. Calculate. i. the speed at which the magnetic field of the stator is rotating. ii. the speed of the rotor when the slip is 0.04 iii. the frequency of the rotor currents when the slip is 0.03	5M

UNIT-IV

7	**a**	A 6-pole, 50HZ, 3-phase induction motor runs at 960rpm when the torque on the shaft is 200Nm. If the stator losses are 1500W and the friction and windage losses are 500W. Find (i) rotor copper loss and (ii) the efficiency of the motor.	7M
	b	Derive the condition for Maximum Torque of an induction motor	5M

OR

8	**a**	Briefly explain about the procedure for circle diagram.	6M
	b	Explain in detail about the blocked rotor test of 3-phase induction motor.	6M

UNIT-V

9	**a**	Explain in detail about the working of rotor rheostat starter with a suitable diagram.	7M
	b	Explain about the speed control of induction motor by Tandem operation and derive the formula of speed.	5M

OR

10	**a**	Explain how the speed of induction motor is controlled by injecting emf into the rotor Circuit.	7M
	b	Two 50 Hz, 3-Φ induction motor having 6 and 4-poles respectively are cumulatively cascaded. The 6-pole motor being connected to the main supply. Determine frequencies of rotor currents and the slips referred to each stator field. If the set has slip of 2%.	5M

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