

Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Fourth Semester

Electrical and Electronics Engineering

EE3405 - Electrical Machines - II

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Compare salient pole and cylindrical pole rotor.	L2	1	2
2.	State the requirements for paralleling alternators.	L1	1	2
3.	What is hunting?	L1	2	2
4.	Why a 3-phase synchronous motor will always run at synchronous speed?	L2	2	2
5.	The induction motor is called as asynchronous motor. Justify?	L2	3	2
6.	A 6 pole, 3- phase induction motor is connected to 50 Hz supply. If it is running at 970 rpm, find the slip.	L2	3	2
7.	Mention the need for starter in an induction motor.	L2	4	2
8.	Differentiate the dynamic braking and regenerative braking.	L1	4	2
9.	Justify why the single-phase induction motor is not a self-starting motor?	L2	5	2
10.	List the applications of stepper motor.	L2	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Define armature reaction and explain the effect of armature reaction on different power factor loads of alternator.	L2	1	16
	Or			
	b What are the methods of determining voltage regulation of three phase alternator? Explain any one method in detail.	L2	1	16
12.	a i Explain the working of three phase synchronous motor with different excitations.	L2	2	8
	ii Derive an equation for power developed in synchronous motor.	L2	2	8
	Or			
	b i Derive the expression for torque equation of a synchronous motor.	L2	2	8
	ii Write shorts notes on synchronous condenser.	L2	2	8

13.	a i	Explain how the rotating magnetic field is produced in three phase induction motor.	L2	3	8
	ii	Draw and explain slip torque characteristic curves of three phase induction motor.	L2	3	8
Or					
	b i	Derive an expression for condition for maximum torque of an induction motor under running condition.	L2	3	8
	ii	Discuss in detail about separation of no-load losses of an induction motor.	L2	3	8
14.	a	Name the various starting methods of three phase induction motor. Explain any two methods in detail.	L2	4	16
	Or				
	b	Explain in detail about the various methods of speed control of three phase induction motor.	L2	4	16
15.	a i	Explain the double field revolving theory for operation of single-phase induction motor.	L2	5	8
	ii	Discuss the principle of operation of hysteresis motor.	L2	5	8
	Or				
	b i	Develop equivalent circuit of a single-phase induction motor ignoring core losses.	L2	5	8
	ii	Explain the principle of operation of servo motor.	L2	5	8