Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Second Semester

Electronics and Communication Engineering

BE3254 – Electrical and Instrumentation Engineering

Regulations - 2021

Duration : 3 Hrs *Maximum: 100 Marks*

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

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Why the rating of transformer is in kVA?	UN	1	2
2.	Differentiate ideal and practical transformer.	UN	1	2
3.	Classify DC machines based on method of excitation.	RE	2	2
4.	List different methods of speed control of DC motor.	RE	2	2
5.	Interpret the advantages of slip ring induction motor over squirrel cage induction motor.	UN	3	2
6.	Mention the significance of voltage regulation in alternator.	RE	3	2
7.	Draw the block diagram of data acquisition system.	RE	4	2
8.	State the need for instrument transformers.	RE	4	2
9.	What is earthing?	RE	5	2
10.	Mention the applications of miniature circuit breaker.	UN	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	A 5 KVA, 200/1000 V, 50 Hz, single phase transformer gave the following test results: Open circuit test (LV): 200 V, 1.2A, 90 W Short circuit test (HV): 50V, 5 A, 110 W. Calculate the parameters of the equivalent circuit referred to LV and HV side and draw the equivalent circuit.	AP	1	13
		Or			
	b	Derive the EMF equation and explain the principle of operation of a single-phase transformer.	AP	1	13
12.	a	Derive the EMF equation and torque equation of a DC machine.	UN	1	13
		Or			
	b	Explain the construction and principle of working of stepper motor.	UN	1	13
13.	a	Discuss the construction and working of three phase induction motors.	UN	1	13
		Or			
	b	Elaborate the construction and working of single-phase induction motors.	UN	1	13

14.	a	Discuss in detail about construction and principle of operation of moving coil type instruments.	UN	4	13
		Or			
	b	Explain the methods of measurement of power in three phase system in detail.	UN	4	13
15.	a	Sketch the general structure of power system and discuss about various elements.	UN	5	13
		Or			
	b	Explain any two types of circuit breakers with neat sketch.	UN	5	13

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16.	a	Derive the equation of induced EMF and explain the working principle of an alternator.	AN	3	15
		Or			
	b	Derive the torque equation of the synchronous motor and discuss any one of its starting methods.	AN	1	15