

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)*

UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026

*Second Semester**Electronics and Communication Engineering*

BE3254 / UBET24204 – ELECTRICAL AND INSTRUMENTATION ENGINEERING

*Regulations – 2021 & 2024**Duration : 3 Hrs**Maximum : 100 Marks***PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	What is a transformer?	L1	1	2
2.	Define harmonics.	L1	1	2
3.	What is armature reaction?	L1	2	2
4.	Why series motor cannot be operated in no load?	L1	2	2
5.	Find the synchronous speed of a 8 pole squirrel cage induction motor operated from the supply at 50Hz frequency.	L2	3	2
6.	List the starting methods of synchronous motor.	L1	3	2
7.	Label the functional elements of an instrument.	L1	4	2
8.	Calculate the energy consumed in a circuit connected with a 15W lamp operating for 8 hours connected from a supply of 230V, 50Hz.	L2	4	2
9.	Draw the structure for a transmission and distribution system.	L1	5	2
10.	Give the principle of DSO.	L1	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i How to derive the equivalent circuit of a transformer using open and short circuit test. Explain in detail.	L2	1	16
	Or			
	b i What is an auto transformer? Explain the merits and demerits.	L2	1	8
	ii How to calculate the efficiency and voltage regulation of a transformer. Explain.	L2	1	8
12.	a Explain the construction and principle of operation for a DC generator and derive the EMF equation from basic concepts.	L2	2	16
	Or			
	b What are the different methods of speed control applied for a DC motor? Illustrate with neat diagrams.	L2	2	16
13.	a i Differentiate Squirrel cage and slip ring induction motors.	L3	3	8
	ii How equivalent circuit of a induction motor can be derived without loading the machine? Explain.	L3	3	8

Or

	b	i	How the construction of an alternator is varying from that of a DC generator. Illustrate with neat diagrams and explain.	L3	3	8
		ii	Derive the torque equation of a synchronous motor from basic principles.	L3	3	8
14.	a		Demonstrate the construction and working Principle of PMMC Moving Coil Instrumentation.	L2	4	16
			Or			
	b		Summarize the measurement of three phase power using three wattmeter method.	L2	4	16
15.	a	i	Explain the concept and methods of earthing.	L2	5	8
		ii	What are the protective devices used in power systems. Explain in detail.	L2	5	8
			Or			
	b		Illustrate with diagrams the construction and working of MCB and ELCB.	L2	5	16
