ANURAG Engineering College
(An Autonomous Institution)
I B.Tech I Semester Supplemantary Examinations, June/July– 2024
BASIC ELECTRICAL ENGINEERING
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours Max. Marks: 75

Section – A (Short Answer type questions) (25 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	Explain the types of sources in an electrical system.	CO1	L2	2M
2.	State and Prove the Maximum power Transfer Theorem.	CO1	L1	3M
3.	Define Average Value and R.M.S Value.	CO2	L1	2M
4.	Explain the single-phase series circuit.	CO2	L2	3M
5.	Mention the applications of DC motors.	CO3	L1	2M
6.	Difference between lap winding and wave winding.	CO3	L2	3M
7.	Why is a transformer rated in KVA.	CO4	L1	2M
8.	Compare the squirrel cage rotor and slip ring rotor of a three-phase induction motor.	CO4	L2	3M
9.	List the types of instruments.	CO5	L1	2M
10.	A moving coil instrument gives a full-scale deflection with a current of 40µA, while the internal resistance of the meter is 500Ω, It is to be used as a voltmeter to measure a voltage range of 0-10V. Calculate the multiplier resistance needed.	CO5	L2	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 x 10M = 50M)

11. A)	Explain briefly about delta to star transformation.	CO1	L3	10M
	OR			
B)	Explain the concept of Self & Mutual Inductance with example.	CO1	L2	10M
12. A)	Explain the behavior of a.c through R-C series circuit.	CO2	L2	10M
	OR			
B)	Sketch the sinusoidal alternating current waveform and define the following terms: i)Instantaneous value ii) Waveform iii) Time period iv) Cycle v) Frequency vi) Amplitude or peak value or maximum value.	CO2	L3	10M
13. A)	Explain the principle of operation of DC motor. Derive an expression for the speed of a DC motor in terms of back e.m.f and voltage equation.	CO3	L2	10M
	OR			
B)	A dc generator has an armature e.m.f of 100 V when the useful flux per pole is 20mWb and the speed is 800 r.p.m. Calculate the generated e.m.f (i) with the same rated flux and a speed of 1000 r.p.m (ii) with a flux per pole of 25 mWb and a speed of 900 r.p.m.	CO3	L3	10M
14. A)	Discuss various types of losses and why OC and SC test are conducted on a transformer.	CO4	L2	10M
	OR			
B)	Explain the principle operation of three phase induction motor.	CO4	L3	10M

15. A)	With a neat sketch, explain the principle of operation of the attraction type moving iron instrument.	CO5	L3	10M
	OR			
B)	Explain the following with reference to the indicating instruments: i) Deflecting torque, ii) Controlling torque, iii)Damping torque.	CO5	L2	10M