ANURAG Engineering College
(An Autonomous Institution)
I B.Tech. I Semester Regular/Supplementary Examinations, Jan/Feb–2024
BASIC ELECTRICAL ENGINEERING
(COMMON TO CSE & AIML)

Time: 3 Hours   **Max. Marks: 60**

Section – A (Short Answer type questions)   (10 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	List the Active Elements and Passive Elements.	CO1	L1	1M
2.	State Norton's theorem	CO1	L1	1M
3.	Define Admittance and impedance	CO2		1M
4.	An alternating current is expressed as I = 14.14 sin 314t. Determine. Instantaneous current when t = 0.02msec.	CO2	L1	1M
5.	Enumerate the various losses associated with transformer	CO3	L1	1M
6.	Write the expression for transformer ratio in terms voltage, current and turns	CO3	L2	1M
7.	Define Slip of an Induction Motor?	CO4	L2	1M
8.	State Faradays laws of electromagnetic induction	CO4	L2	1M
9.	What is the importance of power factor?	CO5	L1	1M
10.	What is the difference between wire & cable?	CO5	L1	1M

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

				Course Outcome	B.T Level	Marks
11.	A)	i) Determine the current in Branch A-B (across 20Ω) by		CO1	L3	5M
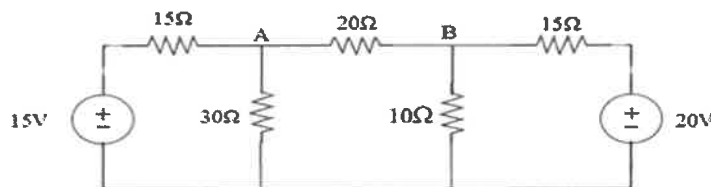
| | | ii) State and explain Kirchhoff's laws? | | | | 5M |

OR

| | B) | State and prove superposition theorem with suitable example. | CO1 | L3 | 10M |

| 12. | A) | i) Derive an expression for RMS values of sine wave form. | CO2 | L2 | 5M |
| | | ii) Explain the power factor, apparent power, active power and reactive power | | | 5M |

OR

| | B) | Derive an expression for the current and impedance for a series RL and RC circuit excited by a Sinusoidally alternating voltage. Draw the phasor diagrams. | CO2 | L3 | 10M |

| 13. | A) | i) A 2,200/200-V transformer draws a no-load primary current of 0.6 A and absorbs 400 watts. Find the magnetising and iron loss currents. | CO3 | L3 | 5M |
| | | ii) Derive the condition for maximum efficiency of a transformer | | | 5M |

OR

| | B) | Draw the constructional diagram of a single –phase transformer and explain all the parts. | CO3 | L2 | 10M |

14. A)	i) Explain working Principle Single Phase Induction motor.		CO4	L3	5M
	ii) Draw and explain about the characteristics of a DC shunt motor.				5M
	OR				
B)	Explain the Generation of rotating magnetic field in three phase Induction motor with necessary diagrams?		CO4	L2	10M
15. A)	i) What is Fuse &explain the principle of operation of Fuse.		CO5	L2	5M
	ii) Explain about different types of circuit breakers.				5M
	OR				
B)	With neat diagrams, explain various types of fuses used in electrical wiring systems		CO5	L2	10M