

ANURAG Engineering College

(An Autonomous Institution)

I B.Tech I Semester Regular/Supplementary Examinations, January – 2025

BASIC ELECTRICAL ENGINEERING

(COMMON TO CSE & AIML)

Time: 3 Hours

Max. Marks: 60

Section – A (Short Answer type questions)

(10 Marks)

Answer All Questions

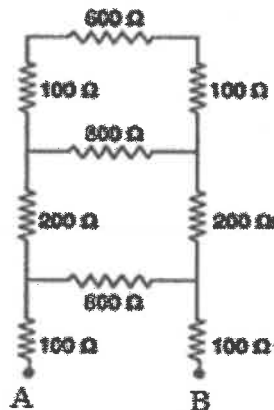
	Course Outcome	B.T Level	Marks
1. Define KVL.	CO1	L1	1M
2. What is the equivalent Resistance when two resistances R1 and R2 are connected in Parallel?	CO1	L1	1M
3. Define average value of sinusoidal quantity?	CO2	L1	1M
4. What do you mean by Form factor and Peak Factor of Sinusoidal wave form?	CO2	L1	1M
5. What is a step-up Transformer?	CO3	L1	1M
6. What is meant by primary and secondary windings of a transformer?	CO3	L1	1M
7. What type of material is used for brushes of a d.c machine?	CO4	L1	1M
8. What is meant by slip in an induction motor?	CO4	L1	1M
9. What is an Earthing?	CO5	L1	1M
10. What is the full form of MCB?	CO5	L1	1M

Section B (Essay Questions)

Answer all questions, each question carries equal marks.

(5 X 10M = 50M)

11. A) Find the equivalent resistance between two points A and B of the figure shown CO1 L3 10M



OR

- B) State and explain Norton's theorem. CO1 L3 10M
12. A) Derive an expression for the impedance, current and power factor in R-L series circuit excited by a a.c source. CO2 L3 10M
- OR**
- B) Derive the expression for the average value and form factor of a sinusoidal waveform. CO2 L3 10M

13. A) A 4500 V/225 V, 50 Hz single-phase transformer is to have an approximate e.m.f. per turn of 15 V and operate with a maximum flux of 1.4 T. Calculate (i) the number of primary and secondary turns and (ii) the cross-sectional area of the core. CO3 L3 10M
- OR**
- B) Explain the principle of working of transformer. Why the primary of transformer draws current from the mains when the secondary is open circuited? CO3 L2 10M
14. A) Explain with neat sketches, the principle of operation of a 3-phase induction motor. CO4 L2 10M
- OR**
- B) Draw and explain torque – slip characteristics of induction motor. CO4 L3 10M
15. A) Explain the working of (i) SFU (Switch Fuse Unit) (ii) MCB. CO5 L2 10M
- OR**
- B) Explain the different types of batteries in detail. CO5 L2 10M