

**ANURAG Engineering College**

(An Autonomous Institution)

I B.Tech II Semester Supplementary Examinations, Jan/Feb-2024

**BASIC ELECTRICAL ENGINEERING**

(COMMON TO ECE &amp; IT)

**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 electrical power?	CO1	L1	1M
2. If there are 3 Resistors R1, R2 and R3 in series and V is total voltage and I is total current then Voltage across R2 is ---	CO1	L2	1M
3. What is the power factor in a pure resistive circuit?	CO2	L1	1M
4. Explain apparent power	CO2	L2	1M
5. If $\phi_m$ is the maximum value of flux in the core then the average rate of change of flux is-	CO3	L1	1M
6. What is the function of magnetizing current?	CO3	L2	1M
7. What is the frequency of the induced E.M.F in an induction motor?	CO4	L2	1M
8. Write the relation between back E.M.F and speed?	CO4	L1	1M
9. What are the types of Earthing?	CO5	L1	1M
10. How does a Circuit Breaker different from Switch?	CO5	L2	1M

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

11. A) Explain about various electrical elements distinguish between ideal and practical voltage source?	CO1	L3	10M
<b>OR</b>			
B) i) State and explain superposition theorem with the help of circuit diagram?	CO1	L3	5M
ii) State and explain Kirchhoff's current law and voltage law?			5M
12. A) Explain Sinusoidal response of series RC circuit with phasor diagram?	CO2	L3	10M
<b>OR</b>			
B) What is resonance and derive resonance frequency for RLC circuit?	CO2	L3	10M
13. A) i) Explain various losses in transformer?	CO3	L3	5M
ii) Define and explain efficiency and regulation of single-phase transformer?			5M
<b>OR</b>			
B) i) Explain short circuit (SC) test on single phase transformer?	CO3	L3	5M
ii) What is meant by step up and step-down transformer?			5M
14. A) Explain construction and working of three phase induction motor?	CO4	L3	10M
<b>OR</b>			
B) i) Explain constructional details of DC machine?	CO4	L3	5M
ii) Draw and explain speed – torque characteristics of DC shunt motor?			5M

15. A) i) Name the two types of earthing and with a neat sketch explain about any one type of earthing  
ii) Explain the function of any one type of low voltage or high voltage fuse with neat diagram?
- OR**
- B) i) Write a short note on Lithium-ion Batteries?  
ii) Why is power factor improvement required and how it can be improved?
- |     |    |    |
|-----|----|----|
| CO5 | L3 | 5M |
|     | L3 | 5M |
| CO5 | L3 | 5M |
|     |    | 5M |