

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM**  
**(AUTONOMOUS)**  
**I B.Tech I Semester Supplementary Examinations, July– 2024**  
**BASIC ELECTRICAL AND ELECTRONICS ENGINEERING**  
**(CE)**

Time: 3 hours

Max. Marks: 70

**Answer ONE Question from each Unit**  
**All Questions Carry Equal Marks**

Q. No.	Questions	BTL	CO	Marks
<b>UNIT – I</b>				
1.	a) State and Explain about the ohm's law with its limitations.	K1	CO1	7M
	b) State and prove Kirchhoff's laws and explain with suitable example.	K2	CO1	7M
<b>OR</b>				
2.	a) Determine the Equivalent Resistance when the resistors are connected in Series & Parallel?	K3	CO1	7M
	b) A 5ohm, 10 ohm, 20 ohm, resistors are connected in series across 120V DC supply calculates Total Resistance, Total current, Voltage drop across each resistor.	K3	CO1	7M
<b>UNIT – II</b>				
3.	a) Write the constructional features of a DC machine with neat Diagram?	K2	CO2	7M
	b) Derive the EMF equation of DC Generator.	K3	CO2	7M
<b>OR</b>				
4.	a) Discuss about the principle of operation of DC motors.	K2	CO2	7M
	b) Explain the speed control methods of DC motor.	K2	CO2	7M
<b>UNIT – III</b>				
5.	a) Derive an EMF equation of a single-phase transformer.	K3	CO3	7M
	b) Draw and Explain the constructional diagram of a single phase transformer?	K2	CO3	7M
<b>OR</b>				
6.	a) Explain Working Principle of 3-ph Induction Motor in detail.	K2	CO3	7M
	b) Describe the brake test on 3-ph Induction Motor.	K2	CO3	7M
<b>UNIT – IV</b>				
7.	Define voltage regulation of an alternator. Explain procedure to determine voltage regulation by Synchronous Impedance Method.	K2	CO4	14M
<b>OR</b>				
8.	Explain construction and Working Principle of three phase Alternator.	K2	CO4	14M
<b>UNIT – V</b>				
9.	a) Explain the concept of feedback amplifier?	K2	CO5	7M
	b) Explain the working of a PN junction diode and sketch the V-I Characteristics of a PN Junction Diode?	K2	CO5	7M
<b>OR</b>				
10.	a) Explain the working principle of Half Wave Rectifier with neat circuit diagram.	K2	CO5	7M
	b) Write a brief note on inverting and non-inverting amplifiers.	K2	CO5	7M