

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous College U/s UGC Act 1956)

B. Voc. SEMESTER-I, SEMESTER END EXAMINATION - WINTER 2024

Subject Code: 1SRE103

Date: 17-12-2024

Subject Name: FUNDAMENTAL OF ELECTRICAL ENGINEERING-1

Time: 11:00 AM to 01:00 PM

Total Marks: 50

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A-Application, N-Analyze, E-Evaluate, C-Create), CO - Course Outcomes.

	Marks	BL	CO
Q.1 Objective-Type Questions	[05]		
(a) Ohm's Law states that the current through a conductor between two points is directly proportional to	1	R	1
(i) Voltage			(ii) Resistance
(iii) Power			(iv) Energy
(b) The unit of electrical energy is	1	R	1
(i) Watt			(ii) Coulomb
(iii) Joule			(iv) Ohm
(c) Kirchoff's Voltage Law (KVL) is based on the law of:	1	R	2
(i) Conservation of energy			(ii) Conservation of charge
(iii) Conservation of power			(iv) Conservation of resistance
(d) The star-delta transformation is useful for:	1	R	3
(i) Analyzing three-phase circuits			(ii) Solving DC circuits
(iii) Finding current in resistors			(iv) Circuit power measurement
(e) Which law describes the induced electromotive force in a conductor moving through a magnetic field?	1	R	4
(i) Ohm's Law			(ii) Faraday's Law
(iii) Lenz's Law			(iv) Coulomb's Law

Q.2 Attempt Any Three	[15]		
(a) State and explain ohm's law & its limitation	5	R	1
(b) Compare series & parallel circuit	5	R	1
(c) Define Node Junction & Loop	5	R	2
(d) Derive expression for equivalent capacitance when capacitors are connected in Parallel.	5	R	3
Q.3 Attempt Any Three	[15]		
(a) Write and explain Thevenin's Theorem.	5	U	2
(b) Write and explain Super Position Theorem.	5	U	2
(c) Explain Charging of capacitor.	5	R	3
(d) Comparison of Magnetic circuit and Electric circuit	5	R	4
Q.4 Attempt Any Three	[15]		
(a) Explain steps for Mesh analysis.	5	A	2
(b) Explain linear and nonlinear element.	5	A	2
(c) What are the different types of capacitors? Describe in brief.	5	U	2
(d) Faraday's Laws of electromagnetic induction.	5	A	3
