

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-I &II (OLD) EXAMINATION – SUMMER-2019****Subject Code: 110005****Date: 20/06/2019****Subject Name: Elements Of Electrical Engineering****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Compare similarities and dissimilarities between electrical and magnetic circuit. **07**
(b) State and explain Kirchhoff's current and voltage laws with diagram. **07**
- Q.2** (a) What is RMS value? Explain analytical method to obtain the RMS value. **07**
(b) Explain two wattmeter methods for star connected load. **07**
- Q.3** (a) Derive the equation of charging current and voltage for capacitor charging process. **07**
(b) Explain the Hysteresis and Eddy current loss in magnetic materials with questions. **07**
- Q.4** (a) Explain the various lighting schemes used in illumination. **07**
(b) Explain various techniques for charging a Battery. Give the applications of Lead Acid Battery. **07**
- Q.5** (a) Explain the wiring diagram of a tube light with choke and glow starter. **07**
(b) State the different methods of earthing and explain any one of them. **07**
- Q.6** (a) Three identical coil having each having resistance of $10\ \Omega$ and reactance of $10\ \Omega$ are connected in (i) star and (ii) delta. Where line voltage are 400 V. Find the power for both case. **07**
(b) A series RLC circuit having resistance of $8\ \Omega$, inductance of 80 mH and capacitance of 100 F is connected across 150 V, 50 Hz supply. Calculate the current, the power factor and the voltage drops in the coil and the capacitance. **07**
- Q.7** (a) What is capacitor? Derive the expression for the equivalent capacitance for capacitors connected (i) in series (ii) in parallel. **07**
(b) Explain the method of transforming a star network of resistances in to delta network resistance. **07**
