

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 10Ω and reactance of 10Ω 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 8Ω , 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**
