Seat No.:	Enrolment No.
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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-I & II EXAMINATION - WINTER 2015

Subject Code: 110005 Date:02/01/2016

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Subject Name: Elements of Electrical Engineering	

Time: 10:30am to 01:00	pm Total Marks: 70)

Instructions:

Q.6

Q.7

earthing.

- 1. Attempt any five questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- 0.1 (a) Explain effect of increase of temperature on resistance in case of i) Pure metals ii) 07 Insulators iii) Semi conductors. Also define Temperature coefficient of resistance with its unit. **(b)** State and explain Kirchoff's Laws applied to electric circuit. 07 (a) Derive the equation: $V_c = V[1-e^{-t/RC}]$ for charging of a capacitor **Q.2 07** When two capacitors A and B are connected across 200volt d.c. supply, the **07** potential difference across A is 120 volt and that across B is 80 volts. The potential difference across A rises to 140 volts when B is shunted by 3µF capacitor. Calculate capacitance of A and B, assuming the supply voltage same in both cases. 0.3 (a) Give the comparision between electrical and magnetic circuits. 07 07 Explain statically induced e.m.f and mutually induced e.m.f. in detail. 0.4 Define: i) RMS Value ii) Average value iii) Crest factor iv) Phase sequence 07 Amplitude vi)Frequency vii) Phase difference A choke coil of negligible resistance is connected across 230V, 50 Hz supply. It 07 draws 5Amp from mains. Calculate the inductance of a coil. If the frequency is reduced to 40 Hz, what will be the current drawn from mains? **Q.5** (a) Explain the resonance in R-L-C series circuit. 07 Explain the method of measuring power in 3 phase circuit by two wattmeter 07 method with relevant phasor diagram.

What is earthing? What is purpose of earthing? Classify any three methods of

(a) Explain the construction and working of Lead acid battery

State and describe various types of lighting schemes.

Write short note on stair case wiring with necessary diagram.

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