B. Tech 1st Semester Examination
ELECTRICAL TECHNOLOGY
Subject Code: EEL-100

Time Allowed: 03 hours.             Maximum Marks: 100

Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: Attempt any five questions and all questions carry equal marks.

1. (a) State and explain Thevenin’s theorem. (10)
   (b) Find the current in all branches for the circuit as shown in Figure 1 by using Nodal Method. (10)

![Figure 1](image)

2. (a) A series RLC circuit has R=50 Ω, L=50mH and C= 0.25μF. Determine
   i) Resonant Frequency
   ii) Band Width
   iii) Q-factor (2*3=6)
   (b) Find the R.M.S. value for the half wave rectified sinusoidal waveform. (6)
   (c) Compare between series and parallel resonance. (8)

3. (a) A balanced delta connected load of (25+j40)Ω per phase is connected to a balanced three phase 440V supply. Find
   i) Phase current
   ii) Line Current
   iii) Power factor
   iv) Active power (2*4=8)
   (b) Derive the expression for 3-Phase power and power factor by using two wattmeter method for a star connected balanced load. (12)

4. (a) Explain O.C. & S.C. test on Single Phase Transformer. (10)
   (b) Explain the working Principle of transformer also Drive the EMF equation of Single Phase transformer. (10)

5. (a) Compare between 3-Phase Induction motor and 3-phase Synchronous motor. (6)
   (b) Derive the EMF equation of D.C. Generator. (6)
   (c) Explain the working principle of 3-phase Induction motor with neat sketch. (8)

6. Write short note on following:- (10*2=20)
   i) Energy Meter
   ii) Wattmeter