9. (a) What are the advantages and disadvantages of moving iron instruments ? 10

(b) Discuss the construction, working of a dynamometer wattmeter with the help of neat diagram. 10

B. Tech. 2nd Semester Examination,

May–2016

ELECTRICAL TECHNOLOGY

Paper–EE–101–F

**Common for all branches**

Time allowed : 3 hours] *[Maximum marks : 100*

Note : ***Question No. 1 is compulsory*** *and attempt any* ***one*** *question from each of four sections.*

1. (a) Define Millman's theorem.

   (b) Define Ohm's law and explain its limitations and properties.

   (c) Explain the reasons for using alternating current (voltage) in sinusoidal form.

   (d) Describe the advantages of polyphase system.

   (e) Explain causes of low power factor. 20

Section–A

2. (a) Discuss briefly application of Kirchoff's law. 10

   (b) Determine the current in the 4 ohm of the circuit.

10
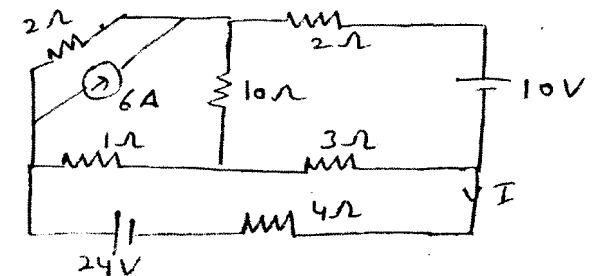
3. (a) State Norton's theorem. List the steps for finding the current in a branch of a network with the help of theorem. 10

(b) For the circuit shown in figure, find the current through R_L when it takes on values of 5 ohm and 25 ohm. Also calculate the value of R_L for which the power dissipated in it would be maximum and find this power. 10

Section–B

4. State the following terms relating alternating current :

(a) R. M. S. value

(b) Average value

(c) Form factor

(d) Peak factor

(e) Phase and phase angle 20

5. (a) Define resonance for parallel circuit, also sketch resonant ckt, phasor diagram and resonance characteristics. 10

(b) A coil takes 2.5 amperes when connected across 200 volt 50 Hz Mains. The power consumed by

the coil is found to be 400 Watts Find the inductance and the power factor of the coil. 10

Section–C

6. (a) A star connected, 6000 V, 3 phase alternator supplying 4000 kW at a power factor of 0.8. Calculate the active and reactive component of the current in each phase. 10

(b) Describe comparison between star and delta systems. 10

7. (a) Discuss open circuit test and short circuit test for transformer. 10

(b) A 230 volt, 2.5 kVA single phase transformer has an iron loss of 100 W at 40 Hz and 70 W at 30 Hz. Find the hysteresis and eddy current losses at 50 Hz. 10

Section–D

8. (a) What is working principle of a synchronous motor ? 10

(b) Describe briefly various parts of a DC machine. 10