

9. (a) What are the advantages and disadvantages of moving iron instrument? 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]

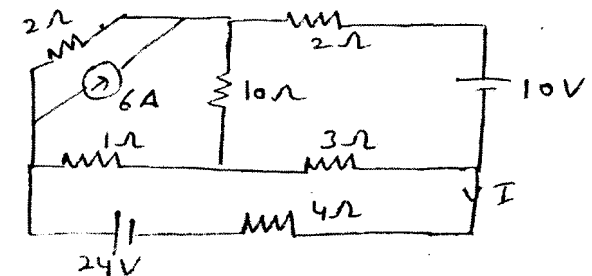
[Maximum marks : 100

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



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3. (a) State Norton's theorem. List the steps for finding the current in a branch of a network with the help of the theorem. 10
- (b) For the circuit shown in the figure, find the current through R_L when its value is 5 ohm and 25 ohm. Also calculate the value of R_L for which the power dissipated would be maximum and find this power. 10

Section-B

4. State the following terms relating to 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 in a parallel circuit, also sketch its phasor diagram and resonance characteristics. 10
- (b) A coil takes 2.5 amp when connected across 200 volt 50 Hz. Calculate the power consumed by

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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 the working principle of a synchronous motor? 10
- (b) Describe briefly various parts of a DC machine. 10

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[P.T.O.]