Roll No. .....

24007

B. Tech. 1st Semester
Examination – December, 2015

ELECTRICAL TECHNOLOGY

Paper : EE-101-F

Time : Three Hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

1. (a) Explain star to delta transformation.

(b) Explain Air damping and eddy current damping.

(c) Derive emf equation for transformer.

(d) Define cycle, frequency, time period and junction.

(e) Discuss comparison of star and delta connection. 20

SECTION – A

2. (a) State and explain Kirchoff's laws by suitable example. 10

7. (a) Draw the ve agram of a power transformer under full lo dition. 10

(b) What is tra ner ? How does it transfer electric energ n one circuit to another ? 10

TION – D

8. (a) Give the ma and functions of the following parts of a DC ine : 14

(i) Field pol

(ii) yoke

(iii) commu

(iv) commu poles

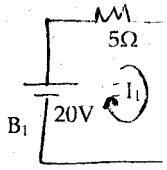
(v) Armatur

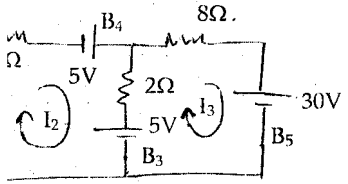
(b) Give advan and uses of lap and wave windings. 6

9. (a) What are th antages and disadvantages of moving iron ments. 10

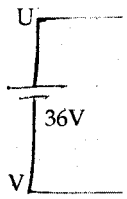
(b) Discuss th nstruction working of a dynamomete meter with the help of neat diagram. 10

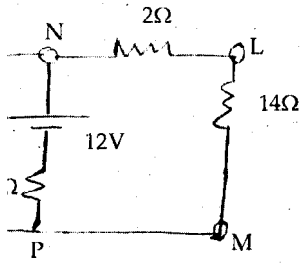
(b) Determine the current supplied by each battery in the circuit in figure : 10





3. (a) Using The s theorem, calculate the potential difference terminal L and M : 10

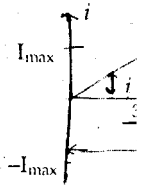


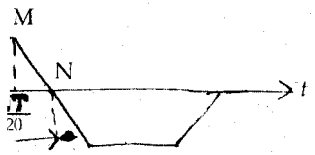


(b) State and ain superposition theorem by suitable ex . 10

CTION – B

4. Find the RMS iverage value of the trapezoidal current wavefc own in figure : 20





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

(b) A circuit consisting of a coil having an inductance of 0.25 H and a Resistance of 3 ohm is arranged in series with a capacitor of Capacitance 20 micro farad. Calculate at what frequency Resonance will take place and current flow if an alternating voltage of 40 volt at the resonant frequency is applied to the circuit. Find also the voltage across the capacitor. 10

SECTION – C

6. (a) Why is the number of phases in a polyphase system always three rather than any other number ? 8

(b) Two wattmeters connected to read the total power in a 3 phase system supplying a balance load read 10.5 kW and –2.5 kW respectively. Calculate the total power and power factor. Also explain the significance of (1) equal wattmeter readings and (2) a zero reading on one wattmeter. 12