Code No. : **5418/A/N**

FACULTY OF ENGINEERING
B.E. 2/4 (Civil) II Sem. (New) (Main) Examination, May/June 2012
ELECTRICAL TECHNOLOGY 'PART – A'

Time: 1½ Hours] [Max. Marks :38

***Note**: Answer **all** questions from Part **A**. Answer **any three** questions from Part **B**.*

PART – A **(14 Marks)**

1. State and explain Kirchoff's laws. **4**

2. If the length of a wire of resistance 'R' is uniformly stretched to n times its original value, its new resistance is

   a) nR b) R/n c) n^2R d) R/n^2 **2**

3. Find the following parameters of a voltage V = 200 sin 31ut

   i) frequency ii) form factor iii) RMS value **3**

4. Draw the equivalent circuit diagram of a transformer referred to secondary. **3**

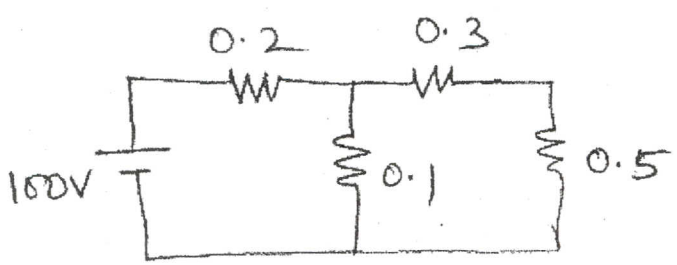
5. A single phase induction motor is running at Nrpm. Its synchronous speed is Ns. If its slip w.r.t. forward field is

   a) S b) – S c) 1 – S and d) 2 – S **2**

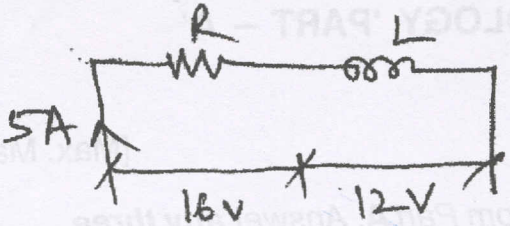
PART – B **(24 Marks)**

1. a) Derive the equation for voltage and current across a pure inductor 'L' connected to an alternating source. **4**

   b) Find the equivalent resistance in the circuit given in figure and also find current through it. **4**



2. a) Calculate the impedance of the circuit. 3



b) Obtain the relationships between the line and phase values of voltage in a 3-ϕ star-connected system. 5

3. a) With the help of phasor diagram explain no-load transformer. 3

b) A single-phase, 440/220V, 10 kVA, 50 Hz transformer has a resistance of 0.2Ω and reactance of 0.6Ω on h v side. The corresponding values of LV side are 0.04Ω and 0.14Ω. Calculate the percentage regulation on full load for 0.8 lagging pf. 5

4. a) Explain principle of operation of induction motor. 4

b) A 4-pole induction motor has synchronous speed of 1500 rpm at supply frequency 50 Hz. Calculate the slip, if the rated speed is 1440 rpm. 4

5. Write short notes on :

a) Polar curves 4

b) Starting of induction motors. 4