Code No. : **6019/A**

FACULTY OF ENGINEERING
B.E. 2/4 (Civil) II Semester (Main) Examination, June 2010
ELECTRICAL TECHNOLOGY – Part – A

Time: $1^1/_2$ Hours] [Max. Marks: 38

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

PART – A **(14 Marks)**

1. Compare series and parallel circuits of d.c. sources. **2**

2. An alternating voltage has the equation v = 141.4 sin 377 t; what are the value of ;

   (a) rms value of voltage (b) frequency. **3**

3. Define form factor and effective value. **2**

4. A 250 kVA, 11000 V/415 V, 50 Hz, 1-ϕ transformer has 80 turns on the secondary. Calculate :

   a) I_1 and I_2

   b) N_1

   c) Maximum value of the flux. **3**

5. How does the rotor of 3-ϕ induction motor rotates ? Explain. **2**

6. Define polar curves. **2**

PART – B **(24 Marks)**

7. Derive the expression for current of R-L-C series circuit. **8**

8. The primary and secondary windings of a 500 kVA transformer have resistances of 0.42Ω and 0.0019Ω respectively. The primary and secondary voltages are 11,000 V and 415 respectively and coreloss is 2.9 kW, assume power factor of the load be 0.8. Calculate the efficiency on full load. **8**

9. Explain with phasor diagrams how the rotating magnetic field rotates at synchronous speed. And also prove that $\phi = \frac{3}{2}\phi_{max}$. 8

10. Discuss briefly about :

    i) Open circuit and short circuit test of 1-ϕ transformer. 5

    ii) List out the application of 3-ϕ induction motor. 3

11. i) Give a brief note on calculations of street lighting. 5

    ii) If a 6-pole induction motor supplied from a three phase 50 Hz supply has a rotor frequency of 2.3 Hz, calculate :

    a) the % slip

    b) the speed of rotor. 3
