B. E. 2nd Semester Examination,

May–2011

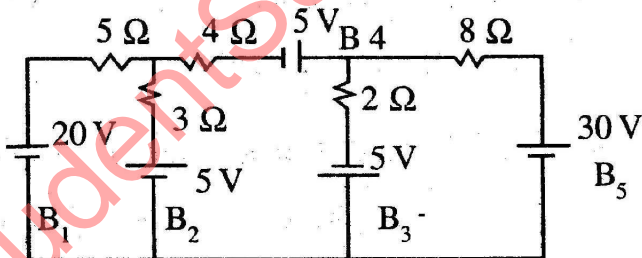**ELECTRICAL TECHNOLOGY**

Paper–EE–101–E

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

Note : *Attempt any **five** questions. All questions carry equal marks.*

1.   (a)   State and explain Kirchoff's Laws.   10

      (b)   Determine the current supplied by each battery in the circuit shown below.   10

2.   (a)   Calculate the RMS and average value form factor and peak factor of an alternating quantity.   10

      (b)   What happens when AC is passed through R, L and C alone ?   10

3. (a) State and explain Tellegen's theorem. Use some suitable example for it. 10

   (b) Obtain the Thevinins and Norton equivalent circuit for the circuit shown below. 10
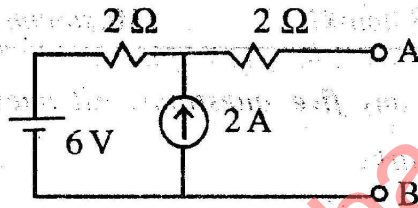
4. (a) Show that the power consumed in a pure inductance and pure capacitance is zero. 10

   (b) Describe resonance in a parallel R-L-C circuit with the help of graphs. 10

5. (a) A balanced 3-phase star connected load of $(8+j6)$ Ω/phase is connected to a 3-phase 230 V supply. Find the line current, power factor, active power, reactive power and total volt-amperes. 10

   (b) How power can be measured in a 3-ϕ circuit ? 10

6. (a) Explain the principle and construction of a single phase transformer. 10

   (b) Derive the condition of maximum efficiency of a transformer. Define voltage regulation. 10

7. (a) Describe the construction of a DC machine. 10

   (b) Draw and explain the construction and working of an induction motor. 10

8. Write a note on any *two* :

   (a) Voltmeter

   (b) Ammeter

   (c) Wattmeter

   (d) Energymeter. 10×2