Code No. : **5240**

FACULTY OF ENGINEERING
B.E. 2/4 (CSE) II Sem. (Suppl.) Examination, January 2012
ELECTRICAL CIRCUITS AND MACHINES

Time: 3 Hours] [Max. Marks: 75

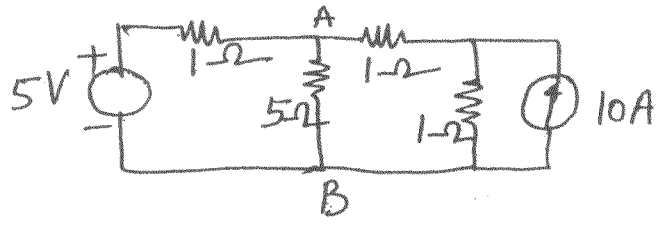
Note : *Answer **all** questions from Part **A**.*
*Answer **any five** questions from Part **B**.*

PART – A **(25 Marks)**

1. What is rms value of an alternating current ? **2**
2. Explain dot convention in inductive circuits. **3**
3. What do you mean by three phase balanced load ? **2**
4. What do you mean by regulation of a transformer ? **3**
5. Draw the characteristics of shunt motors. **3**
6. Give the applications of dc motors. **2**
7. Give various methods of speed control of induction motors. **2**
8. Draw the speed torque characteristics of induction motor. **3**
9. What are the basic features of split-phase motors ? **3**
10. How are single phase motors made self starting ? **2**

PART – B **(5×10=50 Marks)**

11. Find using Thevinins theorem, the current in the 5Ω resistor connected across AB in the network shown in figure.



12. A balanced load of (8+j6)Ω per phase is connected to a 3-phase, 230V, 50Hz supply. Find the line current, power factor, real power, reactive power and apparent power.

13. a) Explain the principle of operation of a dc motor. 6

    b) A 240V DC shunt motor takes an input of 23kW. The armature and field resistances are 0.2Ω and 125Ω respectively. Neglecting stray and friction losses, determine the efficiency. 4

14. Describe the construction and explain the principle of operation of a 3-ϕ induction motor.

15. Explain the principle and operation of a brush less DC motor.

16. Explain open circuit and short circuit tests on a transformer and also explain how can you find efficiency and regulation from these tests.

17. Write a short notes on the following :

    a) Energy stored in inductance. 3

    b) Regulation of transformer. 3

    c) Split phase motor. 4