Reg. No.								

B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2012

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

FOURTH SEMESTER – (REGULATIONS 2008)

EE 9113 – BASIC OF ELECTRICAL ENGINEERING

(BIO MEDICAL)

Time: 3 hours **Max. Marks: 100**

Answer All Questions

Part - A (10 × 2 = 20 Marks)

1. State ohm's law of magnetic circuits, give the units of the quantities invoived.
2. What are permanent magnets?
3. Write the different types of dc motors and give their applications?
4. What is the need for starters in a dc motors and give their types?
5. Define voltage regulation of a transformer?
6. Differentiate step up transformer and auto-transformer.
7. Why synchronous motor is not a self-starting machine?
8. Define % slip of a three-phase Induction motor.
9. How will you make single-phase induction motor a self-starting one?
10. Mention the various applications of stepper motor.

Part - B (5 × 16 = 80 Marks)

11. Write a brief note on hysteresis and eddy-current losses.

12(a). With a neat diagram describe the construction and working principle of a dc motor.

(Or)

12(b). Derive the torque and speed equations of a dc motor and describe the various characteristics of a dc shunt and series motors.

13(a). With a necessary diagram give the construction and working principle of a transformer and derive for voltage equation.

(Or)

13(b). A 10 kVA, 500/250 V, single-phase transformer has its maximum efficiency of 94% when delivering 90% of its rated output at unity p.f. Estimate its efficiency when delivering its full-load output at p.f. of 0.8 lagging.

14(a). With a neat diagram describe the construction and working principle of a synchronous motor.

(Or)

14(b). With a neat diagram describe the construction and working principle of a three-phase Induction motor.

15(a). In detail explain the working principle, speed torque characteristics and applications of a split phase and two value capacitance motor.

(Or)

15(b). Describe the construction, working, advantages and disadvantages of a permanent magnet stepper motor.