1987

B. E. 2nd Semester
Examination – May, 2012

Elect. Tech.

Paper : EE-101-E

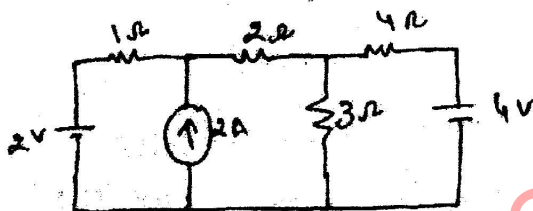Time : Three Hours]   [Maximum Marks :100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note :   (i)   Attempt any *five* questions.

(ii)   Use of non programable calculator is allowed.

1. Define ohms law. A coil consists of 4000 turns of copper wire having a cross-sectional area of 0.8 mm². The mean length per turn is 80 cm. The resistivity of copper at normal working temperature is 0.02 u Ω -m. Calculate the resistance of the coil and the power dissipated when it is connected across a 230 V DC power supply.   20

2. In AC system Voltage signal will lead from the current signal at inductive load and Current signal will lead from Voltage signal at capacitive load. Explain it with the help of mathematical equations.   20

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3. (a) Find the value of potential drop across 3 Ω resistor in the given network by using Norton's theorem. **10**

(b) Derive the equations for star to delta transformation and apply it on some suitable circuit having star connection. **10**

4. A circuit has an inductive reactance of 25 Ω at 50 Hz, its resistanc being 20 Ω. For an applied voltage of 230 V at 50 Hz, calculate

  (i) The value of current

  (ii) The angle of phase difference between current and voltage

  (iii) The value of shunting capacitance to bring the resultant current in to phase with the applied voltage and

  (iv) The resultant current in case (iii) **20**

5. (a) Explain two wattmeter method of power measurement in 3-phase AC system at balanced load. **10**

(b) Derive the relation between line voltage and phase voltage. Line current and phase current for star connection in 3-phase system. **10**

6. Derive the equation for voltage regulation of 1-phase transformer at inductive load by drawing the phasor diagram.   20

7. Explain how the revolving flux is produced in stator of 3-phase induction motor.   20

8. Explain the construction and working of   20

   (i)   WattMeter

   (ii) Energy Meter