

Code: CS1T5, IT1T5, IT2T3RS

**I B.Tech - I Semester – Regular / Supplementary Examinations
December - 2016**

**BASIC ELECTRICAL ENGINEERING
(Common for CSE & IT)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

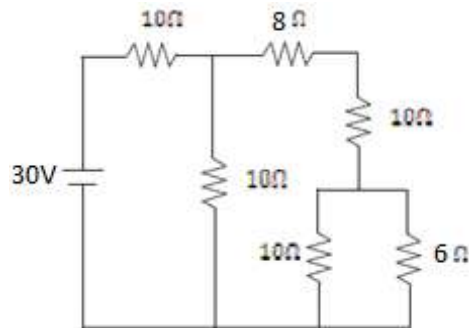
1.

- a) State Ohm's law.
- b) What will be the resistance of individual elements which when connected in delta has 3Ω each is transformed into star connection?
- c) State Kirchhoff's current law.
- d) Define flux density.
- e) What is the difference between series aiding and opposition in magnetic coils?
- f) Write the formula for finding r.m.s value.
- g) What is a phasor?
- h) Write the formula for generated emf of a DC generator.
- i) Write the formula for slip.
- j) Power remains constant from primary to secondary in a transformer. Justify.
- k) Which current measuring instrument is to be used for DC systems?

PART – B

Answer any **THREE** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) Calculate the voltage across 6Ω resistor. 8 M



b) Derive the conversion from star to delta connection. 8 M

3. a) Briefly discuss Faraday's laws of electromagnetic induction discuss statically and dynamically induced EMFs. 8 M

b) Obtain an expression for equivalent inductance when two coils are connected in 8 M

i) series aiding ii) series opposing

4. a) Calculate the rms value and average value of an alternating sinusoidal voltage. Also obtain the expression form factor and peak factor. 8 M

b) Obtain the individual power of a series R, L, C circuit connected to an ac voltage source of peak 230 V, 50Hz where $R=100\Omega$, $L=2\text{mH}$, $C=10\mu\text{F}$. 8 M

5. a) Explain the need for starters in DC machines. 8 M

b) Discuss about the rotating magnetic field in a three phase induction machine. 8 M

6. a) Explain the principle and derive E.M.F Equation of a Transformer. 8 M

b) Briefly discuss about operating principle of PMMC meter. 8 M