

SV - 620

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Seat No.	
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**F. E. (All Branches) (Semester - I & II) (Revised)(CBCS)
Examination, May - 2019
Basic Electrical Engineering
Sub. Code : 71812**

Day and Date : Monday, 06 - 05 - 2019

Total Marks : 70

Time : 10.00 a.m. to 12.30 p.m.

- Instructions :
- 1) Attempt any 3 questions from each section.
 - 2) Figures to the right indicate full marks.
 - 3) Draw a neat labelled diagrams as apart of Explanation.
 - 4) In case of any missing data, assume suitable value, State it clearly.

SECTION-I

- Q1) a)** Define the terms and their units
- i) E.M.F,
 - ii) Potential Difference,
 - iii) Current. [6]
- b) Two batteries A & B are connected in parallel across a load resistance of 4 ohm. The emf & internal resistance of battery A & B are 20 volts, 2 ohm and 24 volts, 4 ohm respectively, using mesh or node analysis, Find
- i) current in battery A,
 - ii) current in battery B.
 - iii) current in load resistance. [6]
- Q2) a)** Define- i) Magnet ii) Magnetic flux density iii) Reluctance. [6]
- b) Explain the concept of magnetic leakage & fringing. [5]
- Q3) a)** Derive the expression for average value by analytical method. [5]
- b) A series R-L-C circuit connected across 200 volts, 50 Hz ac supply draws a current of 5 amp at unity power factor. If the capacitance is of 507 microfarad, Find
- i) Resistance,
 - ii) Capacitive & Inductive Reactance
 - iii) Power [6]

P.T.O.

Q4) Answer any TWO:

- a) Explain Kirchoff's Laws. [6]
- b) Describe B-H Curve. [6]
- c) Derive the equation of Impedances in R-L-C circuit. [6]

SECTION - II

- Q5) a) List the Advantages of 3 phase power generation, transmission, distribution and 3 phase machines [6]
- b) Prove that line Current = $\sqrt{3}$ Phase current in Delta connected circuit. [6]

- Q6) a) Describe construction & working of LED Lamp. Also state its advantages & disadvantages. [5]
- b) Draw Single line diagram of typical power system and explain the stages involved in transmission of Electrical power from generating station to consumer premises. [6]

- Q7) a) Derive the EMF equation of transformer. Also find expression relating voltage ratio, current ratio and turns ratio. [5]
- b) A 30 KVA, 3000/800 Volts, 50 Hz Single phase transformer has 100 turns on secondary winding. Calculate
- i) Primary & secondary currents on full load
 - ii) The number of primary turns
 - iii) The maximum value of flux. [6]

Q8) Answer any TWO:

- a) State the principle on which transformer works. Describe with a neat sketch constructional features of Core type transformer. [6]
- b) A 200/400 V, 50 Hz single phase transformer operates on rated supply at no load by taking 1 A at 0.5 pf. The emf per turn is 2 V. Find
 - i) Maximum flux in core
 - ii) Secondary winding turns
 - iii) Iron loss [6]
- c) Why Earthing is necessary in a wiring installation? Briefly explain any one method of Earthing. [6]

