

SC - 804

Total No. of Pages : 3

Seat No.	
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F.Y. B. Tech. (All Branches) (Semester - I & II) (CBCS)

Examination, December - 2019

BASIC ELECTRICAL ENGINEERING

Sub. Code : 71812

Day and Date : Tuesday, 3 - 12 - 2019

Total Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

- Instructions :
- 1) Attempt 3 Questions from each section.
 - 2) Figures to the right indicates full marks.
 - 3) Draw a neat labeled diagrams as a part 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- [6]
- i) E.M.F.
 - ii) Potential Difference
 - iii) Current
- b) Two batteries A & B are connected in parallel across a load resistance of 6Ω . The emf & internal resistance of battery A & B are 32 volts, 4Ω and 36 volts, 6Ω respectively, using mesh or node analysis, [6]
- Find
- i) Current in battery A
 - ii) Current in battery B
 - iii) Current in load resistance

- Q2) a) Define - [6]
- i) Magnetic Field strength
 - ii) Magnetic flux density
 - iii) Reluctance
- b) Explain the concept of magnetic leakage & fringing [5]

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- Q3) a) Derive the expression for RMS value by analytical method. [5]
b) A series R-L-C circuit connected across 250 volts 50 Hz ac supply draws a current of 10 amp at 0.8 power factor. If the capacitance is of 419 microfarad, Find [6]
i) Resistance
ii) Inductance
iii) Power
- Q4) Answer any two.
a) Explain Kirchhoff's Laws. [6]
b) State the similarities and dissimilarities between Electric and Magnetic circuit. [6]
c) Prove that average power consumed by pure inductor is zero. [6]

SECTION - II

- Q5) a) Explain the terms: Line voltage, Line current, Phase voltage, Phase current. [6]
b) Prove that line Voltage = $\sqrt{3}$ Phase voltage in star connected circuit. [6]
- Q6) a) Describe construction & working of fluorescent lamp. Also state its applications. [5]
b) Why earthing is necessary in a wiring installation? Briefly explain any one method of Earthing. [6]
- Q7) a) State the principle on which transformer works. Describe with a neat sketch constructional features of core type transformer. [5]
b) A 50 KVA, 3000/600 volts, 50 hz single phase transformer has 200 turns on secondary winding. Calculate [6]
i) Primary & secondary currents on full load
ii) The number of primary turns
iii) The maximum value of flux

Q8) Answer any Two.

- a) What are the advantages of 3 phase system over single-phase system? [6]
- b) A 400/800 V, 50 Hz single phase transformer operates on rated supply at no load by taking 2 A at 0.6 pf. The emf per turn is 4 V. Find [6]
- Maximum flux in core
 - Secondary winding turns
 - Iron loss
- c) 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]

