SC - 804

Total No. of Pages : 3

Seat No.	

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]**

P.T.O.

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 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]**

i) Maximum flux in core

ii) Secondary winding turns

iii) 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]**