SE - 838

Total No. of Pages : 3

Seat No.	

F.E. (Part - I) (All Branches) (Semester - I & II) (CBCS) (Revised)

Examination, December - 2018

BASIC ELECTRICAL ENGINEERING

Sub. Code : 71812

Day and Date : Saturday, 01 - 12 - 2018 **Total Marks : 70**

Time : 02.30 p.m. to 05.00 p.m.

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

SECTION - I

Q1) a) State & explain Kirchhoff's laws. **[6]**

b) Two batteries A & B are connected in parallel across a load resistance of 10 ohm. The emf & internal resistance of battery A & B are 35 volts, 5 ohm and 40 volts, 5 ohm respectively, using mesh or node analysis, Find **[6]**

i) Current in battery A,
ii) Current in battery B.
iii) Current in load resistance.

Q2) a) Define - **[6]**

i) Magnetic field
ii) Magnetic Field Intensity
iii) Reluctance

b) Distinguish between electric & magnetic circuit. **[5]**

Q3) a) Define power factor and state disadvantages of low power factor. **[5]**

b) A resistance of 20 ohm and inductance of 47.8 mH are connected in series across 200 volts, 50 Hz ac supply. Find **[6]**

i) Inductive Reactance,
ii) Impedance,
iii) Power factor,

P.T.O

Q4) Answer any TWO.

a) Explain Ohms Law for Electric circuits. Also state factors effect on Resistance. [6]

b) Explain how single phase sinusoidal voltage is generated in AC. [6]

c) State & explain types of induced EMF's. Compare statically and dynamically induced EMF. [6]

SECTION - II

Q5) a) Explain the terms: Line voltage, Line current, Phase voltage, Phase current. [6]

b) Compare star connected 3 phase load with delta connected 3 phase load in terms of phase voltage, phase current, power drawn, other advantages related to the configuration. [6]

Q6) a) Describe construction & working of CFL. Also state its advantages & disadvantages. [5]

b) Explain the construction & working of HRC fuse. Also state its advantages & disadvantages. [6]

Q7) a) Explain the operation of Single phase transformer on No load. Also draw related phasor diagram. [5]

b) The primary winding of Single phase transformer is connected to a 200V, 50Hz supply. The secondary winding has 1000 turns. If the maximum value of flux is 2.01 mWb, determine [6]

i) The number of primary turns

ii) The Secondary induced voltage

iii) The net cross sectional area if the flux density has maximum value of 0.365 Tesla.

Q8) Answer any TWO.

a) State and Explain Power Losses occured in Transformer. **[6]**

b) A 1100/220 V, 20 KVA,50 Hz single phase transformer operates has 100W iron loss and 80W copper loss at half of the full load. When this transformer operates at full load with 0.8 pf, find

i) Full load primary and secondary currents

ii) Full load copper loss

iii) Full load efficiency

[6]

c) Draw & Explain the single line diagram of a typical power system from the Point of Generation to Point of Utilization. **[6]**