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Reg. No. : .....

Name : .....

Combined First And Second Semester B.Tech. Degree Examination, April 2013
(2008 Scheme)
08-108 : BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

Time : 3 Hours Max. Marks : 100

***Instruction** : Answer **all** questions from Part – **A** and **any one** full question from each Module in Part – **B**.*

PART – A

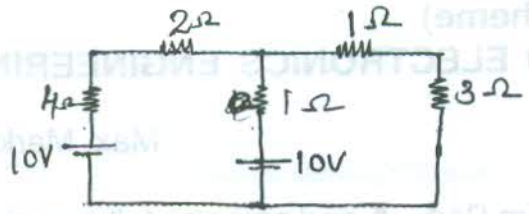
1. Define self and mutual inductances.
2. Differentiate between RMS value and average value in alternating voltage.
3. A series RL circuit takes 384 W at a power factor of 0.8 lagging from 120 V, 60 Hz supply . What are the values of R and L ?
4. On a 3 phase balanced delta connected load supplied at 240 V AC the readings of two wattmeters are 1710 W and 3210 W respectively. What is the current drawn from the supply ?
5. Derive the emf equation of a single phase transformer.
6. Explain in detail, two methods of non conventional energy sources.
7. Explain the need for high transmission voltage.
8. Explain why electrical equipments should be earthed.
9. How PN function can be used as a rectifier ?
10. Explain the principle of strain guages. **(10×4=40)**

P.T.O.

PART – B

Module – I

11. a) Find the current through all the resistors in the circuit given below. 8



b) A mild steel ring of 15 cm mean circumference has a cross sectional area of 3 cm^2 and has a winding of 250 turns on it. The ring is cut through at a point so as to provide an air gap of 1mm is the magnetic circuit. It is found that a current of 4 A in the winding produces a flux density of IT in the air gap.

Find : i) The relative permeability of the mild steel.

ii) Inductance of the winding. 12

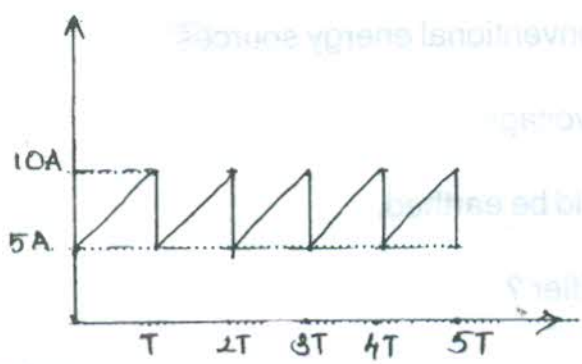
12. a) A coil with resistances 5 Ω and inductance 100 mH is connected across a 100v, 50 Hz supply.

i) Calculate impedance of the coil. 12

ii) Draw the vector diagram with supply voltage as reference vector.

iii) Calculate voltage across resistance and inductance.

b) Calculate the average and RMS values of the current waveform shown in figure below. 8



Module – II

13. a) Explain with neat sketches ,the constructional details of a 3 phase transformer. 10

    b) Sketch the layout of typical thermal power plant. Also explain the various stages of generation. 10

14. a) Draw the typical power transmission scheme and explain. 8

    b) i) With a neat sketch, explain the method of plate earthing. 8

    ii) Explain the necessity of starter in fluorescent lamp circuit. 4

Module – III

15. a) Discuss the movement of charge carriers at a PN function during forward and reverse biased conditions. 10

    b) Explain the working of a simple zener regulator. 10

16. a) i) Write notes on UPS. 5

    ii) Draw the VI characteristics of triac. 5

    b) i) How can LVDT be used to measure force ? 5

    ii) What is the purpose of filter in a rectified power supply ? 5