



(Pages : 3)

D – 5371

Reg. No. :

Name :



Combined First and Second Semester B.Tech. Degree
Examination, April 2018
(2008 Scheme)

08.108 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(CMNPHTARUFBS)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. State Kirchhoffs current and voltage laws. Explain them with suitable circuit.
2. Distinguish between statically induced and dynamically induced EMFs.
3. What are the advantages of three phase system over single phase system ?
4. Explain the different losses in a transformer and write the corresponding equations.
5. Draw the schematic layout of electrical wiring system in a domestic installation.
6. Explain the importance of earthing in domestic installations.
7. Draw and explain a typical electrical power transmission and distribution system.
8. Explain the principle of Photo diode.
9. Explain the V-I characteristics of SCR.
10. What are the characteristics of passive and active components ?

P.T.O.



PART – B

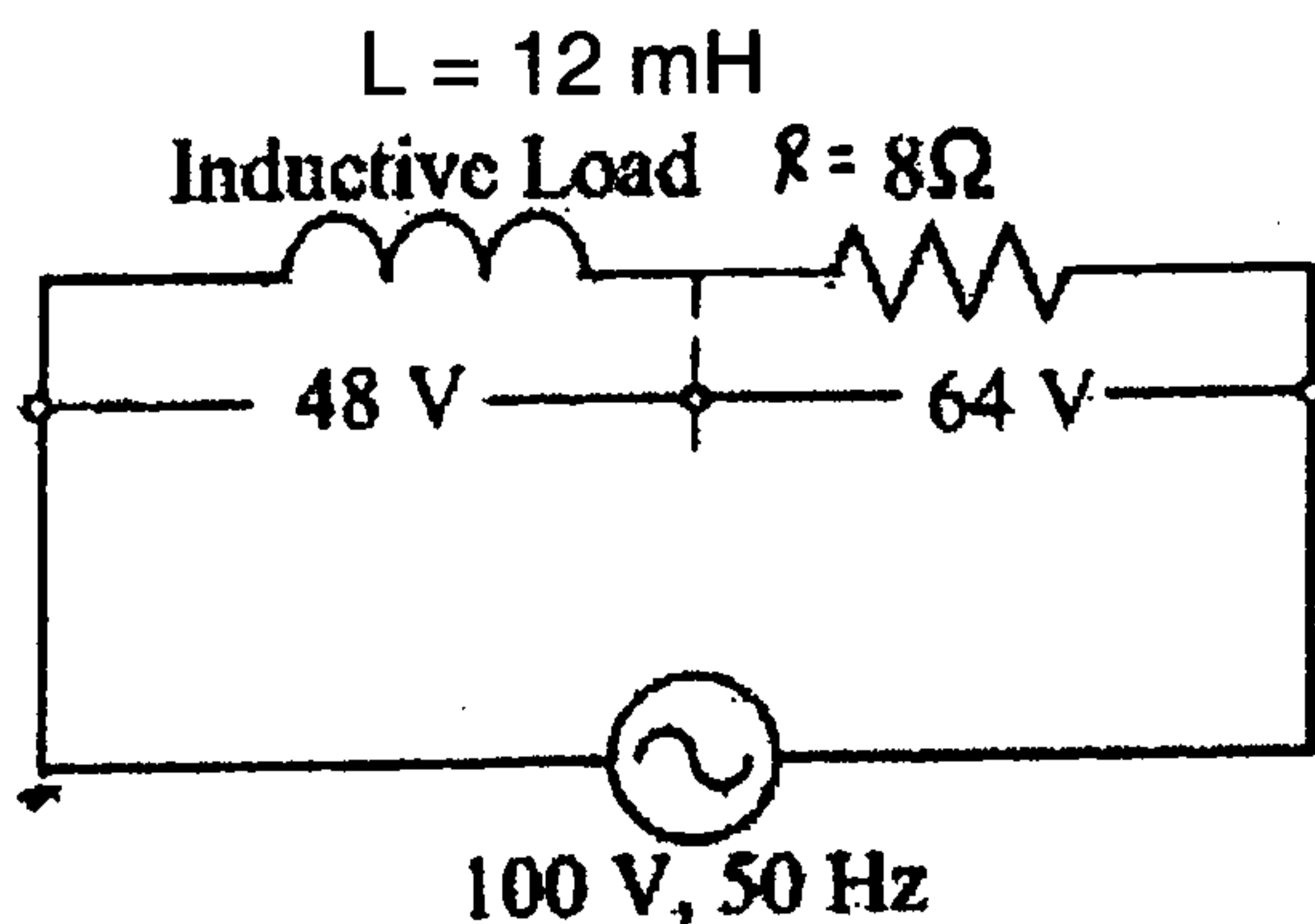
Answer **one full question** from **each Module**.

Module – I

11. a) State and explain the laws of electro-magnetic induction. 6
- b) Define the terms, RMS. Average and Instantaneous values of a sinusoidal waveform. 6
- c) A 0.8 m long wire moves at right angles to its length at 40m/s in uniform magnetic field of 1Wb/m^2 . Calculate the emf induced in the conductor when the direction of motion is (i) perpendicular to the field, and (ii) inclined at 30° to the direction of the field. 8

OR

12. a) Three alternating currents $i_1 = 150 \sin\left(\omega t + \frac{\pi}{4}\right)$, $i_2 = 40 \sin\left(\omega t + \frac{\pi}{2}\right)$ and $i_3 = 80 \sin\left(\omega t + \frac{\pi}{9}\right)$ are fed simultaneously to a common conductor. Find the equation of resultant current and its rms value. 8
- b) From the circuit shown in figure below find the following :
- impedance across of the circuit
 - current in the circuit
 - power absorbed by the inductive load
 - total power and
 - power factor of the whole circuit. 12





Module – II

13. a) Explain the constructional details of core and shell type transformers. 6
b) Explain the working of hydroelectric power plant with neat schematic diagram. 8
c) What are the different equipments used in substations ? 6

OR

14. a) Discuss the need of high voltage transmission. 5
b) Briefly explain plate earthing with dimensional sketch. 10
c) What are the different types of protective devices used in domestic installations ? 5

Module – III

15. a) Explain V-I characteristics of PN junction diode. What is meant by dynamic and static resistance ? 6
b) Explain the principle of Photo diode. 6
c) Explain the working of UPS with neat circuit diagram. 8

OR

16. a) Draw and explain the full wave bridge rectifier with resistive load and derive the dc value and rms value of voltage. 8
b) Briefly explain the need of series inductor and shunt capacitor filters in filter circuit. 6
c) Explain the V-I characteristics of TRIAC. 6
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