



Reg. No. :

Name :

Combined First and Second Semester B.Tech. Degree Examination, May 2011
(2008 Scheme)
08-108 : BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(CMNPHETARUFB)

Time : 3 Hours

Max. Marks : 100

Instructions : Answer all questions from Part A. Answer 3 full questions from Part B choosing not more than one question from each Module.

PART – A

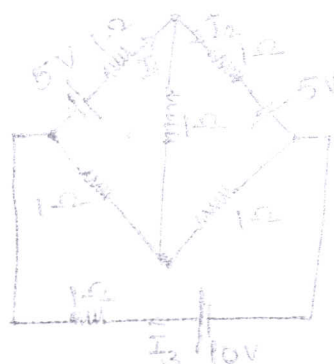
1. Explain activepower, reactivepower and power factor in a.c. circuits.
2. Explain self and mutual inductance.
3. A capacitor having a capacitance of $10 \mu\text{F}$ is connected in series with a non inductive resistance of 120Ω across a 100 V , 50 Hz supply. Calculate current, and phase difference between current and supply voltage.
4. Three similar resistors are connected in star across 400 V , 3 phase lines. The linecurrent is 5A . Calculate the value of each resistor. To what value should the line voltage be changed to obtain the same line current with the resistors connected in delta ?
5. Explain losses in a transformer.
6. Draw a dimensional sketch of pipe earthing and explain.
7. Distinguish between primary and secondary distribution.
8. What are the advantages of transmission at high voltages ?
9. Define depletion region. How is it formed in PN junction ?
10. What are various filter circuits used in the rectifier circuits ? Explain. (10×4=40 Marks)



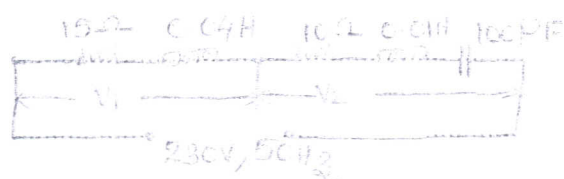


PART - B

Module - I



- b) An iron ring of 0.15 m diameter and 0.001 m^2 in cross section with a saw cut 2 mm wide is wound with 300 turns of wire. The gap flux density is 1 T. The relative permeability of the iron is 500. Determine the exciting current and the inductance. Ignore leakage and fringing. 10
12. a) From the given circuit find the values of (i) current drawn, (ii) voltages V_1 and V_2 ; (iii) power factor. Also draw the phasor diagram indicating the terminal voltages V_1 and V_2 and supply voltage with respect to current.



- b) Three coils each of resistance 4Ω and inductive reactance 3Ω are connected in delta across 400 V , 50 Hz supply. Find the current in each coil, line current, active, reactive and apparent power.



Module – II

13. a) A single phase transformer has a core whose cross sectional area is 150 cm^2 operates at a maximum flux density of 1.1 Wb/m^2 from a 50 Hz supply. If the secondary winding has 66 turns, determine the output in KVA when connected to a load of 4Ω impedance. Neglect any voltage drop in the transformer. 10
- b) With a neat block diagram, explain the method of power generation in a hydro electric power station indicating all components clearly. 10
14. a) Explain the working of MCB's and ELCB's with neat sketches. 12
- b) Explain incandescent and energy efficient lamps and give its advantages and disadvantages. 8

Module – III

15. a) Explain the VI characteristics of zener diode and describe the operating principle of photodiode. 10
- b) Draw the circuit diagram for a bridge rectifier and explain its working with relevant waveforms. How will you eliminate ripple in this circuit ? Explain. 10
16. a) With block diagram explain the working of SMPS. 10
- b) Explain VI characteristics of SCR. 10

