(Pages : 3) **2563**

Reg. No. : .....

Name : .....

Combined First and Second Semester B.Tech. Degree Examination, April 2015
(2008 Scheme)
08-108 : BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(CMNPHETARUFBS)

Time : 3 Hours Max. Marks : 100

Instructions : *Answer **all** questions from Part **A**. Answer **one full** question from **each** Module in Part **B**.*

PART – A

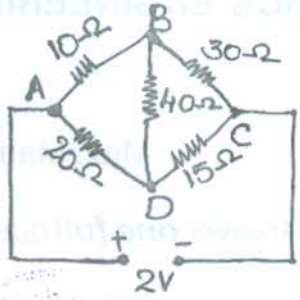
1. State and explain Lenz's law.
2. A capacitor having a capacitance of 10 μF is connected in series with a non inductive resistance of 120 Ω across a 100 V, 50 Hz supply. Calculate the power consumed and phase difference between current and supply voltage.
3. Deduce the relationship between phase and line currents in a 3-phase delta connected system. Obtain the expression for total power.
4. List the various equipments in substations.
5. Derive the emf equation for a single phase transformer.
6. Explain the need of using of ballast with discharge lamp.
7. Explain the advantages and limitations of tidal power.
8. Sketch any one type of earthing.
9. Explain the basic principle of strain gauges.
10. With VI characteristics, explain the working of a zener diode. **(10×4=40 Marks)**

P.T.O.

PART – B

Module – I

11. a) A bridge network ABCD is arranged as follows. Determine the value and direction of current in 40 Ω resistor. 10



b) A mild steel ring has 30 cm mean circumference, cross sectional area of 6 cm^2 and has a winding of 500 turns on it. The ring is cut through at a point 50 so as to provide an airgap of 1 mm in the magnetic circuit. A current of 4 A in the winding produces a fluxdenity of IT in the air gap. Find relative permeability of the mild steel and inductance of the winding. 10

12. a) A 3 phase star connected load has an impedance of (8 + j6) ohms is each phase. The load is connected to a 3 phase, 400 V, 50 Hz supply. What will be the wattmeter readings if the power is measured by two wattmeter method ? 10

b) Prove the power consumed by a capacitor is zero, when connected to a sinusoidal ac supply. 10

Module – II

13. a) Draw the layout and explain the working of a hydroelectric power plant. What are its advantages and disadvantages ? 10

b) A 200 KVA, 3, 300/240 V, 50 Hz single phase transformer has 80 turns on the secondary winding. Assuming an ideal transformer, calculate the following :

a) Primary and secondary currents on full load;

b) The maximum value of flux and

c) The number of primary turns. 10

14. a) Draw the schematic layout of an LT switch board. 5

    b) Explain the working of a fluorescent lamp. 5

    c) Explain the principle and constructional details of a single phase transformer. 10

Module – III

15. a) Draw the circuit diagram of a full wave rectifier with a capacitor filter. Explain its working. 10

    b) Explain the principles of solar cell and LED. 10

16. a) Explain with neat sketches the working of LVDT. 10

    b) Compare halfwave, fullwave and bridge rectifiers. 10