EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014
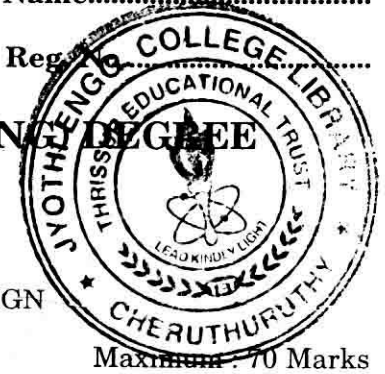
(2009 Scheme)

EE/PTEE 09 801 – ELECTRICAL SYSTEM DESIGN

Time : Three Hours

Maximum : 70 Marks

Part A

*Answer **all** questions.*

1. What are the advantages of MCB over normal fuse?

2. Define Diversity factor.

3. Define Load factor.

4. Which are the different types of earthing commonly used?

5. Define Luminous flux and Luminous intensity.

(5 × 2 = 10 marks)

Part B

*Answer any **four** questions.*

6. Write the functions of MCB, ELCB, VCB and MCCB.

7. Why fuse is not used in neutral wire?

8. Discuss about automatic power factor correction.

9. Distinguish between Power transformer and Distribution transformer.

10. Define the Laws of Illumination.

11. Define reflection and reflection factor.

(4 × 5 = 20 marks)

Part C

*Answer **all** questions.*

12. Explain the classification of supply system with necessary diagrams and give the characteristics of each one.

Or

13. Two lamps and a fan are to be controlled independently by separate switches. The switch and fan regulators are on one switch board. Draw the schematic diagram and the wiring diagram in both joint box and looping in system of wiring.

14. What is meant by harmonics? Explain the effects of harmonics and how it can be eliminated?

Or

15. Explain the design consideration of electrical installation in commercial building.

16. What are the different types of substations? Draw the single line diagram of 16 MVA, 110/11 kV outdoor substation having one incoming and three outgoing.

Or

17. What is mean by earthing? Explain plate earthing in detail with neat diagram.

18. With diagram describe the working principle of :

   (a) Sodium vapour discharge lamp.

   (b) Fluorescent lamp.

Or

19. The front of a building 50 × 16 m is illuminated by sixteen 1000 W lamps arranged so that uniform illumination on the surface is obtained. Assuming a luminous efficiency of 17.4 lumens/ watt and co-efficient of utilization of 0.4, determine the illumination on the surface.

(4 × 10 = 40 marks)