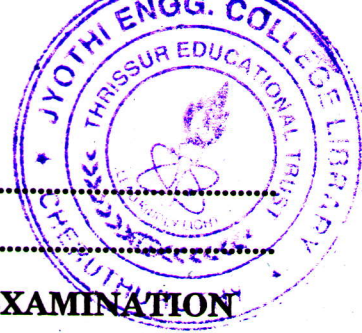


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Name.....

Reg. No.....



**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
APRIL 2017**

EE/PTEE 09 801—ELECTRICAL SYSTEM DESIGN

(2009 Admissions)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Write down the functions of MCCB and VCB.
2. Define Demand factor.
3. Give any *four* types of substations according to the service.
4. What is called lamp efficiency and lamp efficacy ?
5. What is called lamp shielding angle ?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Differentiate between neutral wire and earth wire.
7. Why fuse is not used in neutral wire ?
8. What is meant by harmonics ? How it can be eliminated ?
9. Distinguish between power transformer and distribution transformer ?
10. Define the laws of illumination.
11. List down the qualities of good lighting schemes.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. Discuss the relevant IE rules pertaining to the following :
 - (a) Declared voltage and frequency of supply to consumer.
 - (b) Clearance between the nearest conductor and any part of the building for voltage upto and including 11 kV.

Turn over

- (c) Minimum clearance above ground for a low voltage line crossing a street.
- (d) Sharing of expenditure for service connection and distribution mains between licensee and the consumer

Or

- 13. What is the purpose of earthing ? Explain the design of pipe earthing with neat diagram.
- 14. What are the causes of low power factor in electric supply system ? Explain automatic power factor correction method in detail ?

Or

- 15. (a) Discuss the different systems of wiring for internal electrical installation.
- (b) Give a neat sketch showing all details for a typical house wiring scheme commencing from the service connection.
- 16. Sketch the layout for a typical 16MVA-110/11kV outdoor substation having one incoming and two outgoing. List down all the equipments.

Or

- 17. Draw the elevation of an H pole mounted substation and show all the equipments required.
- 18. With diagram describe the working principle of :
 - (a) Mercury vapour lamp.
 - (b) Fluorescent lamp.

Or

- 19. A lamp having a uniform candle power of 200 in all directions is provided with a reflector which directs 60% of total light uniformly on to a circular area of 10 m diameter. The lamp is hung 6 m above the area. Calculate the illumination a) at centre b) at the edge of the surface with and without reflector.

(4 × 10 = 40 MARKS)