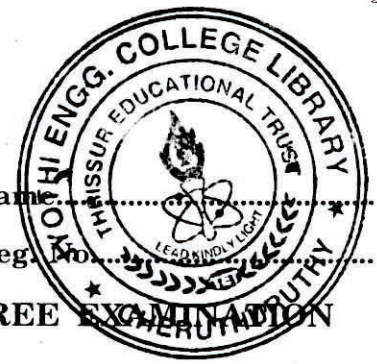


C 41658

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Name
Reg. No.



**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
APRIL 2013**

EE 09 801—ELECTRICAL SYSTEM DESIGN

(2009 Admissions)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. (a) What are the different methods of earthing methods ?
(b) State why fuses are provided on the line wire and never on neutral wire.
(c) Explain automatic power factor correction.
(d) What is meant by shielding in electrical system ?
(e) What are the main classifications of building arrangements ? (5 × 2 = 10 marks)

Part B

Answer any four questions.

2. (a) Explain the difference between switch fuse unit and fuse switches.
(b) Explain the design aspects of LT panels.
(c) Explain the selection of LT cables.
(d) Explain how earth resistance can be measured by using earth megger.
(e) What are the primary purposes of lighting in an office and in industrial plants ?
(f) State the meaning of the following terms :
 - (i) Maintenance factor.
 - (ii) Lamp efficiency and efficacy.
 - (iii) Absorption factor.
 - (iv) Reflection factor.(4 × 5 = 20 marks)

Part C

Answer all questions, each carries 10 marks.

3. A room 18 m × 6 m × 5 m is to be wired in PVC wiring from a single phase 230 V supply. There are two rows of lamps along the length of the room. The number of lamps may be suitably assumed. Each lamp is controlled by an independent switch. The wiring along the wall is 4 m above the ground and the switches are 1.3 m above the ground. Draw the installation plan and determine the quantity of materials required and the cost for the material and labour.

Or

Turn over

4. Draw a layout of residential building with 3 bedrooms, kitchen, sitout, bathrooms and hall showing all the requirements as per IE rules.
5. Explain the design of UPS systems for computer labs and IT industries.

Or

6. Explain the safety aspects and estimation of commercial building.
7. (a) Explain the lightning protection of buildings. (5 marks)
(b) Explain the earth mat design of the substations. (5 marks)

Or

8. An indoor substation 11 kV, 415 V, 1500 kVA is installed in the premises of a factory for feeding three phase and single phase power to four workshops. The substation is fed from an 11 kV overhead feeder running near it. Draw the layout of the substation and prepare a list of important material required.
9. (a) Explain the design of street lighting. (5 marks)
(b) Explain with circuit diagram the different types of discharge lamps. (5 marks)

Or

10. What are the general rules of interior lighting and explain the design of interior lighting by average illumination method.

[4 × 10 = 40 marks]