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B. Tech (Electrical Engg.) Semester: 6th
INDUSTRIAL ELECTRICAL SYSTEMS
Subject Code: BELED1-611
Paper ID: 18111531

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a) In which terms fuse rating is expressed?
b) For painful shock, what is the range of electric shock current at 50 Hz.
c) Which type of wiring is highly suitable for temporary shed?
d) Which lamp is used for outdoor illumination of buildings and airport runway?
e) Write two applications of flood lighting.
f) What are the reasons of low power factor?
g) Define the terms meter candle and foot candle.
h) What is the role of main switch and how it is rated?
i) Differentiate Incandescent lamp with modern luminaries.
j) What is known as candle power?

Section – B **(5 marks each)**

Q2. State the laws of illumination. Explain the laws with the help of suitable diagrams and derive an equation of the same.

Q3. Classify various cables and wires (Domestic and Industrial both) with their uses and applications.

Q4. Define PLC stating its role in process automation. Discuss various advantages and limitations of PLC based control system.

Q5. What are the general I.E rules for wiring Installation? Explain in brief selection and sizing of components in wiring system.

Q6. What is the role of industrial substations? How the monitoring and controlling performed at these substations? Discuss in details.

Section – C **(10 marks each)**

Q7. (a) Establish the relation among Luminance intensity, Illumination and Brightness.
(b) A room with an area of 6×9 m^2 is illustrated by ten 80 W lamps. The luminous efficiency of the lamp is 80 lumens/W and coefficient of utilization is 0.65. Find the average illumination.

Q8. (a) What is the basic difference between a fuse and switch?
(b) List various components used to wire LT system. Discuss rating of each component so that we can make/put demand from a seller.

Q9. Write a technical notes on:

a) DG sizing and its optimal placement.
b) Power metering system.