

Bihar Engineering University, Patna
End Semester Examination - 2022

Course: B.Tech.
Code: 110704

Semester: VII
Subject: Industrial Electrical systems

Time: 03 Hours
Full Marks: 70

Instructions:-

- (i) The marks are indicated in the right-hand margin.
(ii) There are **NINE** questions in this paper.
(iii) Attempt **FIVE** questions in all.
(iv) Question No. 1 is compulsory

Q.1 Answer the following in brief (any seven):

[2 x 7 = 14]

- (a) Define ELCB.
(b) What is single line diagram (SLD) of a wiring system?
(c) What is the Role of Isolator?
(d) Write two important guidelines for installation.
(e) What is the basic requirement of Commercial installation?
(f) What is the main disadvantage of Low power factor?
(g) What is full form of SCADA?
(h) Write difference between UPS and Battery banks.
(i) What is the unit of Reactive Power and Apparent Power?
(j) The rating of Fuse is expressed in

- Q.2** (a) What is the basic difference between a switch and Fuse? [7]
(b) Classify various cables (domestic and industrial both) with their application. [7]

- Q.3** (a) Explain the working of MCCB with proper diagram. [7]
(b) Discuss all types of Residential and Commercial wiring systems. [7]

- Q.4** (a) Define Illumination systems. Based on energy efficiency which lamp is best suitable for industrial application. [7]
(b) What are the basic requirements of Commercial Installation. Also discuss earthing process in installation process. [7]

- Q.5** Define PLC. State its role in process automation. Discuss various advantages and limitations of PLC-based Control system. [14]

- Q.6** What do you understand by a distributed generation? Write and discuss its advantages and limitations. Discuss in detail. [14]

- Q.7** What is the role of an industrial substation? How are the monitoring and controlling performed at these substations? [14]

- Q.8** (a) Clearly differentiate isolators and circuit breakers with their roles. [7]
(b) Explain DG sizing and its optimal placements. [7]

- Q.9** Write short notes on any two of the following:- [7 X 2]
- I. Electric shock and electrical safety practices.
 - II. Power triangle and role of Various Components in Power system.
 - III. Power metering system.