

**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)**

**B.Tech.Sem - VIII ELECTRICAL :SUMMER- 2022**

**SUBJECT : ELECTRICAL POWER QUALITY**

Day : Tuesday  
Date : 14-06-2022

**S-13347-2022**

Time : 02:30 PM-05:30 PM  
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

**Q.1** Define and explain the following terms: (10)  
i) Voltage Sag            ii) DC Offset  
iii) Notching            iv) Interruption

**OR**

**Q.1** What do you mean by Transients? Explain the two categories of Transients along with their causes in detail. (10)

**Q.2** a) Which are the various mitigation techniques for Voltage Sag? (05)  
b) What are Ferroresonant Transformers? How are they capable of handling Voltage sag conditions? (05)

**OR**

**Q.2** a) Explain the concept of Voltage sag due to Induction motor starting. (05)  
b) Which are the various sources of Voltage Sag? Explain in detail (05)

**Q.3** a) Which are the various sources of Overvoltage? Explain any one in detail (05)  
b) What is Shielding? How is it related to Overvoltage protection? (05)

**OR**

**Q.3** a) What is a Voltage magnification phenomenon? What are the causes of Voltage magnification? (05)  
b) What is the need of Surge arrestors? Which are the types of Surge arrestors? (05)

**Q.4** a) Explain the concept of Non- Linearity with respect to Harmonic generation. (05)  
b) State and explain any two devices to control Harmonic distortion. (05)

**OR**

**Q.4** a) Compare Harmonics and Transients. (05)  
b) State different commercial and industrial loads that create harmonics. (05)

**Q.5** a) How does the Power Quality affect the electrical distribution system? (05)  
b) Explain any two Power Quality problems and its analysis. (05)

**OR**

**Q.5** a) Which are the devices used for Harmonic mitigation? Explain any one in detail. (05)  
b) Explain the various effects of Harmonics. (05)

**Q.6** a) Explain the different technologies of DG. (05)  
b) What is Resurgence of DG? Explain in brief. (05)

**OR**

**Q.6** a) Which are some of the PQ measuring devices? Explain with their purpose of application. (05)  
b) Explain PQ test details with instrument set up and testing details. (05)

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