

**B. Tech. Sem –VIII (Electrical Engg.) (2014 COURSE) (CBCS) :
SUMMER - 2019**

SUBJECT: ELECTRICAL POWER QUALITY

Day : Thursday

Time : 02.30 PM TO 05.30 PM

Date : 23/05/2019

S-2019-2892

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 a) What is 'Power Quality'? What are the reasons for increased concern in Power Quality? (05)

b) What do you mean by Voltage Sag and Voltage Swell? (05)

OR

Q.1 a) What is CBEMA curve? Explain the events described in the curve. (05)

b) Which are the types of Interruptions? Explain in detail. (05)

Q.2 a) Which are the various causes and effects of Voltage Sags? (05)

b) What are the different Voltage Sag mitigation techniques? Explain in detail. (05)

OR

Q.2 a) What is the principle of DVR operation for Voltage Sag mitigation? (05)

b) What are the standards associated with Voltage Sag? (05)

Q.3 a) What is the phenomenon of Ferro resonance? Also explain the problems associated with Ferro resonance. (05)

b) What are 'Surge Arrestors'? Explain their advantages. (05)

OR

Q.3 a) What is the need for protection against Overvoltage? Explain the basic principle of Overvoltage protection. (05)

b) Define impulsive transient. Give an example for impulsive transient Overvoltage. (05)

Q.4 a) Define Harmonics and explain any two main sources of Harmonics. (05)

b) Explain with mathematical formula the indices used with respect to Harmonic measurement. (05)

OR

Q.4 a) State and explain the effects of Harmonics. (05)

b) Define: (05)

a) Interharmonics d) Odd harmonic

b) Subharmonics) Even Harmonic

c) Triplen harmonic

Q.5 a) State the operation of Spectrum analyzer? Also give the applications. (05)

b) Compare Active and Passive filters for controlling Harmonics. (05)

OR

Q.5 a) Define and explain Voltage Flicker according to IEEE standard 1159. (05)

b) Which are the sources of Harmonics? Explain in detail. (05)

Q.6 a) Draw and explain the experimental test set up to monitor Power Quality. (05)

b) Discuss operating conflicts with respect to Power Quality and DG. (05)

OR

Q.6 a) What is selection criterion for test location of Power Quality? (05)

b) What are some typical Power Quality problems associated with DG. (05)

* * * * *