

**B.Tech. - VIEP - ELECTRICAL ENGINEERING****(BTELVI)****Term-End Examination, 2019****BIEEE-013 : POWER QUALITY ISSUES  
AND REMEDIAL MEASURES****Time : 3 Hours]****[Maximum Marks : 70**

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**Note : Attempt any five questions. Each question carries equal marks. Use of scientific calculator is allowed.**

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1. (a) Explain Power Quality Standards with reference to transients, interruptions, flicker, Notches and Harmonics. [7]
- (b) Explain Harmonic Reference in detail. [7]
2. (a) Define the term Voltage Sag and Voltage Swell. How are they generated in networks ? [7]
- (b) Explain Interruption. What are the causes and effects of interruption on utility and uses ? [7]

3. (a) Give the various types of Harmonic filtering devices and suggest the most applicable one. [7]
- (b) What are fundamental problem behind long-duration voltage variation ? [7]
4. (a) Give the difference between STATCOM and SVC with relevant diagram. [7]
- (b) What are the different control techniques of single phase automatic power factor controller (APFC)? Explain any one in detail with diagram. [7]
5. (a) Explain in detail the dynamic voltage restorer for sag, swell and flicker problems. [7]
- (b) Give the Control diagram for the maintenance of UPS for constant power supply. [7]
6. (a) Explain the harmonic filtering using shunt injection filter for 3-phase, 4-wire transmission system. [7]
- (b) What do you mean by Grounding ? What are the requirements for grounding ? [7]

7. Write short notes on **any two** of the following :

[2×7=14]

- (a) Wiring problems and its solutions
- (b) Harmonics in SMPS
- (c) Effect of voltage sags on drives and peripherals.

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