

**B.Tech. in ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

December, 2013

**BIEEEE-013 : POWER QUALITY ISSUES AND
REMEDIAL MEASURES**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions.

Each question carry equal marks.

-
-
1. (a) With suitable graphical representations explain the following with regards to power quality : 7
- (i) Voltage Sag
 - (ii) Voltage Swell
 - (iii) Transients
 - (iv) Interruptions
 - (v) Harmonics
 - (vi) Notching
- (b) Define Power Quality. What are the reasons for being concerned with power quality ? 7
2. (a) Explain the various causes and effects of voltage sags. 7
- (b) Discuss the significance of power quality monitoring. What are the important power quality monitoring objectives ? 7

3. (a) Explain the power system Response characteristics under the presence of harmonics. 7
(b) Discuss in detail three phase power converters and arcing devices as sources of harmonics. 7
 4. (a) Discuss the origin of short and long interruptions. 7
(b) Explain briefly the various devices for controlling harmonic distortion. 7
 5. (a) Explain briefly the power factor improvement in non-linear loads using passive filtering. 7
(b) What is the role of D-STATCOM in voltage sag correction ? Discuss. 7
 6. (a) What are the causes and effects of low power factor ? Explain any one method of improving power factor using custom power device. 7
(b) Discuss how dynamic voltage restorer overcomes power quality problems. 7
 7. (a) What are the reasons for grounding ? Explain its importance in detail. 7
(b) What are the various grounding and wiring problems ? Also give the solutions to these problems. 7
-