

**B.TECH.****THEORY EXAMINATION (SEM-VIII) 2016-17****POWER QUALITY****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A****1. Explain the following:****10 x 2 = 20**

- (a) What is the meaning of the term "Power Quality".
- (b) Define the term "Voltage Swell".
- (c) What are the Sources of Electrical Transients in Power System
- (d) Define the terms Notching and Harmonics
- (e) What is Flicker meter?
- (f) What could be the impact of "Poor Power Quality" on systems efficiency, reliability and operation?
- (g) What is 'CUSTOM POWER'?
- (h) Define any two types of devices used for over voltage protection.
- (i) What are the causes of voltage and current harmonics?
- (j) Explain how power quality issue 'Voltage regulation' affected by distributed Generation.

**SECTION – B****2. Attempt any five of the following questions:****5 x 10 = 50**

- (a) Discuss the working of Active Series compensator.
- (b) Discuss the different types of Waveform distortion
- (c) What is the Meaning of "Voltage Sag"? What are the causes of the Voltage Sag in a power System?
- (d) What are the different types of Electrical Transients occur in a Power System?
- (e) Discuss the Effect of Harmonics on the Transformers and AC motors in details
- (f) Discuss the Harmonics Mitigation Techniques in Detail.
- (g) Explain the different types of Network reconfiguration devices with a circuit diagram.
- (h) What are the equipments needed to minimize the voltage disturbance? Identify the location of these.

**SECTION – C****Attempt any two of the following questions:****2 x 15 = 30**

3. What are the Causes of Voltage and Current Harmonics? Discuss the Harmonics Measurement Techniques.
4. With suitable block diagram, explain the working difference between "On-line UPS" and "Off-line UPS".
5. Discuss the load compensation and Voltage Regulation using DSTATCOM.

