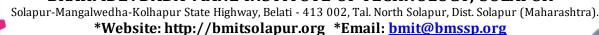
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**CLASS: B.TECH SUB: POWER OUALITY AND FACTS** SHARAD APPA

A.Y: 2022-2023 **SEM-II** 

### **SECTION-I**

## **UNIT 1: Introduction to Power Quality**

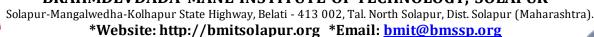
- 1) Explain the following:
  - a) under voltage
  - b) Over voltage.
  - c) Concepts of transients
  - d) short duration variations
  - e) Long duration variation.
- 2) Explain the concept of Sags and swells
- 3) Write notes on:
  - a) voltage imbalance
  - b) voltage fluctuation
  - c) power frequency variations
- 3 Prof. U.M. Halli 4) What are the International standards of power quality
- What is Computer Business Equipment, Manufacturers Associations (CBEMA) curve?

#### **Unit- 2 Harmonics**

- 1) Which are the Harmonic sources from commercial loads?
- 2) Which are the Harmonic sources from industrial loads?
  - 3) What is the location of harmonic sources?
  - 4) Explain Power system response characteristics?
  - 5) Write notes on:
    - a) Harmonics Vs transients
    - b) harmonic distortion
    - c) voltage and current distortion
  - 6) Explain the concept of harmonic indices?
- 7) Explain inter harmonics?
  - 8) Explain the principle of resonance?
  - 9) What are the various Harmonic distortion evaluation methods?
  - 10) What are the various devices for controlling harmonic distortion?
  - 11) Explain in detail what are filters? Explain passive and active filters.
  - 12) What are the various IEEE and IEC standards for harmonics.

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## **Unit- 3 Power Quality Monitoring**

- 1) What are the different Monitoring considerations?
- 2) Explain monitoring and diagnostic techniques for various power quality problems.
- 3) What are the different Power quality Measurement Equipments?
- 4) Explain harmonic analyzer.
- 5) Explain disturbance analyzer.
- 6) Explain flicker meter.

# **SECTION-II**

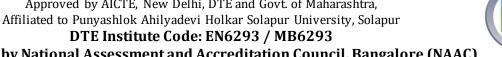
## **Unit-4 FACTS Concepts and Static Shunt Compensator**

- 1) What is facts? What its importance in transmission Network?
- 2) Explain Basic types of FACTS controller.
- 3) What are the different Objectives of the shunt compensation?
- 4) Explain mid-point voltage regulation of line segmentation for shunt compensators.
- 5) Explain the method of controller VAR generation.
- 6) Explain the different shunt compensator devices
  - a) TCR, TSC
  - b) FC-TCR
  - c) TSC-TCR
- 7) Explain static VAR compensators: SVC and STATCOM
- 8) Give Comparison between V-I and V-O Characteristics of STATCOM and SVC.

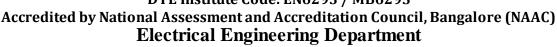
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5.U.M. Halli



## UNITWISE QUESTION BANK

CLASS: B.TECH SUB: POWER QUALITY AND FACTS

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## **Unit-5 Static Series Compensator**

- 1) What are the Objectives of the series compensation?
- 2) Explain variable Impedance type series compensation
  - a) GCSC
  - b) TSSC
  - c) TCSC
  - d) SSSC
- 3) What are switching converter type series compensators?
- 4) Explain characteristics of series compensator.

## **Unit-6: TCVR, TCPAR and Combined Compensators (UPFC and IPFC)**

- 1) What are the Objective of voltage and phase angle regulators?
- 2) Explain switching converter based Voltage and Phase angle Regulators.
- 3) Explain Basic operating principles of UPFC.
- 4) Explain control structure of UPFC.
- 5) Explain Basic operating principles and characteristics of IPFC.
- 6) Explain Control structure and applications of IPFC.