

**Punyashlok Ahilyadevi Holkar Solapur University, Solapur**  
**Electrical Engineering Department**  
**Class: - Final Year B. Tech. (Electrical) SEM-II (New w.e.f. Nov 2021)**  
**Subject: Power Quality and FACTS**

**QUESTION BANK**

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**Questions 4marks each:**

- 1) Write notes on:
  - a. under voltage & over voltage
  - b. Concepts of transients
  - c. short duration variations
  - d. long duration variations
- 2) Define:
  - a) Voltage imbalance
  - b) Voltage fluctuation
  - c) Power frequency variations.
- 3) What are the International standards of power quality?
- 4) What is Computer Business Equipment Manufacturers Associations curve?
- 5) What are the harmonic sources from commercial loads?
- 6) What are the harmonic sources from industrial loads?
- 7) Explain TDD & THD.
- 8) What do you mean by harmonic distortion?
- 9) What is harmonics? What do you mean by inter harmonics?
- 10) What is power monitoring? What are the Monitoring considerations?
- 11) Explain harmonic analyzer & flicker meter.
- 12) Explain ITI curves.
- 13) Explain disturbance analyzer.
- 14) Explain oscilloscopes as PQ monitoring equipment.
- 15) What are FACTS Controllers? What are its basic types?
- 16) What is the importance of Transmission interconnections?
- 17) Write notes on:  
A) TCR, TSC   B) FC-TCR   C) TSC-TCR   D) STATCOM, SVC
- 18) Give explanation for comparison between V-I and V- Q Characteristics of STATCOM and SVC.

19) Write notes on:

A) GCSC B) TSSC C) TCSC D) SSSC

20) What are the characteristics of series compensation?

21) What is the concept of series capacitive compensation of series compensators?

22) Explain working principle of UPFC.

23) Explain the Transient Stability objective with Phase Angle Regulators.

### Questions 6marks each:

1) What are voltage variations? Explain its types.

2) Explain the terms:

- a) Voltage sag & swell
- b) Voltage imbalance
- c) Voltage fluctuation

3) Explain voltage and current distortion

4) What is harmonics and what are its indices?

5) What are filters? Explain passive filters.

6) What are filters? Explain active filters.

7) How harmonic distortion is evaluated?

8) What are power quality measurement equipment? Explain its types.

9) Define power quality & power quality monitoring. Enlist the different monitoring equipment with necessary diagrams.

10) Explain the working principle of FC-TCR.

11) Explain the working principle of TSC-TCR.

12) Explain the working principle of SVC.

13) What are the different objectives of shunt compensation?

14) Explain mid-point voltage regulation for line segmentation of shunt compensators.

15) What are the different objectives of series compensation?

16) Explain the working principle of SSSC.

17) Explain the working principle of TCSC.

18) How stability margin is increased when series compensator is used for transmission line?

19) What are the various objectives of voltage and phase angle regulators?

20) What is UPFC? Explain its control structure.

21) What is IPFC? Explain its control structure?

22) What is IPFC? Explain its working principle?

23) What are the applications of IPFC?