



**Internal Examinations (Sem-II-2022-23)**

**ISE-III**

**Class & Program : B. Tech Electrical Engg Course Name & Course Code: Power Quality and FACTS**

**MCQ/Objective Type Questions**

**Choose the correct alternatives from the options and rewrite the sentence.**

1. The parameters that define the quality of electrical power.  
(A) Voltage (B) Current (C) Frequency **(D) All of these**
2. It is possible that good power for one piece of equipment could be bad power for another one.  
(A) Can not say **(B) Yes** (C) No (D) None of these
3. The CBEMA power quality graph plots the depth of voltage sags on the \_\_\_\_\_ axis against the duration of voltage sags on the \_\_\_\_\_ axis.  
(A) horizontal, vertical **(B) vertical, horizontal** (C) Both (D) None of these
4. A stand by power supply does not typically provide \_\_\_\_\_ as does an online UPS.  
(A) Transient protection (B) Voltage regulation **(C) Both** (D) None of these
5. Effect of temperature rise in overhead lines  
(A) Decrease Sag, increase Tension (B) Both increase **(C) Increase Sag, decrease Tension**  
(D) Both decrease
6. Source of transient voltage  
(A) Lightning (B) Switching loads ON or OFF (C) Interruption of fault circuits **(D) All of the above**
7. The fault currents are interrupted by overcurrent devices such as  
(A) Circuit breakers (B) Fuses **(C) Both** (D) None of the above
8. Strategies for utilities to decrease the impact of lightning  
(A) Shielding (B) Line arrestors (C) Low side surges (D) All of the above
9. FACTS employ \_\_\_\_\_ for switching.  
(A) High speed thyristors (B) Low speed thyristors (C) Rectifier (D) None of the above
10. What are the various type of FACTS controllers?  
(A) Series Controllers (B) Shunt Controllers (C) Combined series-series controllers  
(D) Combined series-shunt controllers (E) All the above
11. \_\_\_\_\_ are sinusoidal voltages or currents having frequencies that are integer multiples of the frequency.  
(A) Harmonics (B) Distortion (C) Notching (D) None of these
12. Harmonic Analyzer uses which of the following analysis to identify the predominate harmonic component.  
(A) Frequency domain analysis (B) Time domain analysis (C) Frequency-Time domain analysis  
(D) None of these
13. When analysing a non sinusoidal waveform, it is important to know the \_\_\_\_ of the harmonic components present.  
(A) Magnitude and Phase angle (B) Phase angle only (C) Magnitude only (D) firing angle only
14. Skin effect is observed in which of the circuits:  
(A) DC Circuits (B) AC Circuits (C) Both A and B (D) None of these



## **Electrical Engg. Department**

### **Section I**

- a) Explain the following:
  - 1) under voltage 2) Over voltage 3) Concepts of transients 4) short duration variations
- b) Which are the Harmonic sources from commercial loads?
- c) What is the location of harmonic sources?
- d) What are the various devices for controlling harmonic distortion?
- e) What are the different Power quality Measurement Equipment's?
  - a) What is Computer Business Equipment, Manufacturers Associations (CBEMA) curve?
  - b) What are the various devices for controlling harmonic distortion
  - c) Explain flicker meter.

### **Section II**

- d) Explain basic types of FACTS Controllers.
- e) Compare SVC and STATCOM.
- f) Explain the characteristics of GCSC
- g) What are the Objective of voltage and phase angle regulators?
- h) Explain Basic operating principles and characteristics of IPFC.
- i) Explain the working principle of TCR.
- j) Explain the characteristics of TCSC
- k) Explain Control structure and applications of IPFC.