Printed Pages : 1 **Roll No.** | | | | | | | | | | | **MTEE-052**

M.TECH.

THEORY EXAMINATION (SEM–II) 2016-17

POWER QUALITY

Time : 3 Hours ***Max. Marks : 70***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION- A

1. Attempt all parts of this Section **7 × 2 = 14**

(a) What do you mean by power quality also define power quality?

(b) What is voltage unbalance?

(c) Justify Power quality equal to Voltage Quality.

(d) What is very short and micro interruption?

(e) What are general classes of power quality problems?

(f) What do you means by term IEEE also gives purpose of power quality standards?

(g) What are the requirements for the power quality measuring equipments?

SECTION- B

2. Attempt any three parts of the following **3 × 7 = 21**

(a) Define the term voltage sag and voltage swell. How are they generated in network?

(b) Distinguish between voltage flicker and voltage fluctuations. What are the main reasons of these problems?

(c) Differentiates between power conditioner and UPS.Draw the circuit diagram of power conditioner.

(d) Describe in detail the design measures to minimize the frequency and duration of outages in distribution system**.**

(e) Describe different Standard test waveform and explain the parameters used to characterize them

SECTION- C

3. Attempt any all questions in this section. **5 × 7 = 35**

(a) Distinguish between voltage sag and under voltages. Briefly discuss the techniques used for sag or dip reduction.

OR

Define “waveform distortion”. Explain following types of waveform distortions:

(i) Harmonics (ii) Electrical noise (iii) Notching

(b) Draw the schematic diagram for the voltage regulation for distribution system.

OR

Explain voltage regulator. Also explain following devices used for voltage regulation.

(i) Tap changer transformer

(ii) Isolation devices with separate voltage regulator.

(iii) Impedance compensation devices, such as capacitors.

(c) Explain the working of an on line UPS with the help of suitable diagram. Also point out superiority over off line UPS.

OR

What are power conditioners? Explain working principle? Explain working principle of unified power quality conditioner (UPQC)

(d) **Explain following**

(i) Best possible method of harmonic elimination.

(ii) Active filters and passive filters.

OR

Write short notes on

(i) IEEE Std 519 (ii) Objective of power quality monitoring

(e) Explain standards of harmonics. What do you mean by harmonics distortions explain?

OR

Explain the measures to minimize voltage disturbances