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**B.Tech. Degree VIII Semester Supplementary Examination
July 2019**

**EE 15-1804 (E3) POWER QUALITY
(2015 Scheme)**

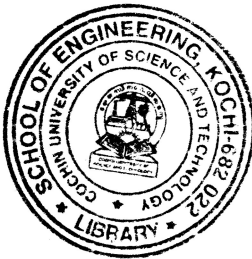
Time : 3 Hours

Maximum Marks : 60

**PART A
(Answer ALL questions)**

(10 × 2 = 20)

- I.
 - (a) Define power quality.
 - (b) What is the importance of power quality?
 - (c) Which are the different motor starting methods?
 - (d) What is ferroresonance?
 - (e) Find the total harmonic distortion of a voltage waveform with the following frequency makeup : fundamental $V_1 = 114V$, 3rd harmonic $V_3 = 4V$, 5th harmonic $V_5 = 2V$, 7th harmonic $V_7 = 1.5V$, 9th harmonic $V_9 = 1V$.
 - (f) Briefly explain the terms THD and TDD.
 - (g) What is the difference between true power factor and displacement power factor?
 - (h) What are the end user capacitor applications?
 - (i) Explain briefly the transducer requirements for power quality monitoring.
 - (j) What are the power quality monitoring standards



PART B

(4 × 10 = 40)

- II. Explain general classification of power quality problems. (10)
- OR**
- III.
 - (a) Explain the steps involved in power quality evaluation. (5)
 - (b) Draw ITI Curve and write the inferences. (5)
- IV. Explain the procedures involved in estimating voltage sag performance. (10)
- OR**
- V. Explain the devices for transient over voltage protection. (10)
- VI.
 - (a) Explain the sources of harmonics. (8)
 - (b) What is the effect of harmonics on transformers? (2)
- OR**
- VII.
 - (a) Explain the devices for voltage regulation. (8)
 - (b) Explain briefly source of flicker. (2)
- VIII. Explain the different power quality measurement equipments. (10)
- OR**
- IX.
 - (a) Explain the methods of assessment of power quality measurement data. (6)
 - (b) What are the monitoring considerations for power quality? (4)