

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: EE465

Course Name: POWER QUALITY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

		Marks
1	Define power quality. Why power quality has become an issue in recent years	(5)
2	Differentiate between linear loads and non-linear loads with suitable examples.	(5)
3	Explain how Fourier series can be used for harmonic analysis.	(5)
4	Explain the importance of power quality monitoring.	(5)
5	With neat diagram, explain shunt passive filters.	(5)
6	Distinguish between active filter and passive filter	(5)
7	Explain about power frequency field.	(5)
8	Explain common mode rejection ratio and common mode noise.	(5)

PART B

Answer any two full questions, each carries 10 marks.

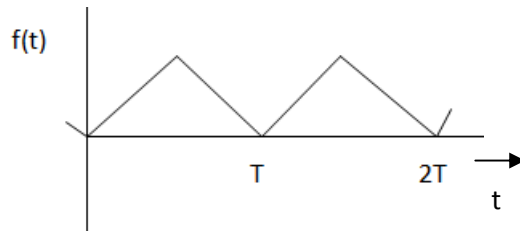
- 9 What are the disturbances coming under the term “waveform distortion”. (10)
Explain each one them with neat figures
- 10 a) What is meant by voltage sag and voltage swell as per IEEE standard. (5)
- b) Find the harmonic distortion of a voltage with following harmonic components: (5)
- Fundamental=114V
3rd harmonic=4V
5th harmonic=27V
7th harmonic=1.5V
9th harmonic=1V
- 11 a) Explain in detail how the following indices can be used to measure harmonic (10)
distortion in power system:
- a)THD
b)TDD
c)TIF
d)DIN

e)C message weights

PART C

Answer any two full questions, each carries 10 marks.

- 12 a) Find the amplitude of the 5th harmonic of given waveform. Peak value is unity. (5)



- b) Define windowing. How window function can be used for harmonic analysis (5)
- 13 a) What are the common monitoring objectives? (5)
- b) Explain the features for power line disturbance analyser (5)
- 14 a) What is meant by aliasing? (3)
- b) With the help of block diagram, explain in detail about the flickermeter. (7)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) Explain the role of filters in power quality? (3)
- b) With neat diagram, Explain the operation of series active filter to improve power quality. (7)
- 16 a) Distinguish between conducted and radiated emission (5)
- b) Explain about high frequency EMI sources. (5)
- 17 Explain various power quality conditioners for smart grid. (10)
