Reg No.:_____ Name:_____

10000EE465122006

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Regular and Supplementary Examination December 2021 (2015 Scheme)

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. Comment on the growing concern over power quality among the electrical utilities and consumers.	(5)
2		Calculate the THD of a current waveform with following frequency makeup I_1=500A,I_3=200 A,I_5=120 A,I_7=90A	(5)
3		How do Fourier series helps in analysis of harmonics?	(5)
4		Enumerate the features of harmonic and spectrum analysers used for PQ monitoring	(5)
5		Write a note on hybrid filters	(5)
6		Discuss on current harmonic cancellation using transformers.	(5)
7		Mention any two power quality issues of grid connected renewable energy sources.	(5)
8		Illustrate on power frequency fields	(5)

PART B

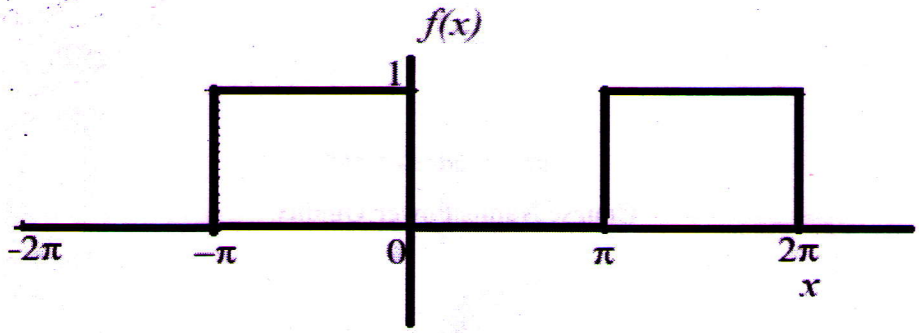
Answer any two full questions, each carries 10 marks.

9	a)	Mention various kinds of voltage variations with neat figures.	(6)
	b)	Define flicker. List various sources of flicker	(4)
10	a)	Define notching. Mention the causes of notching?	(5)
	b)	Differentiate between linear and non linear loads with suitable example	(5)
11	a)	Mention any two major sources of harmonics in power system	(5)
	b)	Comment on the significance of power quality standards. List any two IEEE power quality standards	(5)

PART C

Answer any two full questions, each carries 10 marks.

12 a) (10)



Obtain the Fourier series expansion of the waveform shown in the figure above

13 a) Describe how window functions can be used for waveform analysis? (5)

b) List the major objectives of power quality monitoring. (5)

14 With the help of a neat diagram explain the working of a IEC flicker meter (10)

PART D

Answer any two full questions, each carries 10 marks.

15 With the help of necessary figures discuss the classification of active power filters. (10)

16 a) Write a note on notch filters. (5)

b) Distinguish between conducted emission and radiated emission (5)

17 a) Illustrate the working of any one power quality conditioners used in smart grid. (6)

b) Define CMRR. (4)

****