

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: EE465

Course Name: Power Quality

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

| | | Marks |
|---|---|-------|
| 1 | Illustrate about notching in power quality | (5) |
| 2 | Explain the following harmonic indices: a)THD b)TDD | (5) |
| 3 | Define windowing. How window function can be used for harmonic analysis | (5) |
| 4 | What are the objectives of power quality monitoring? | (5) |
| 5 | With neat diagram, explain shunt active filters. | (5) |
| 6 | Explain hybrid filters. | (5) |
| 7 | Explain common mode rejection ratio and common mode noise. | (5) |
| 8 | Distinguish between conducted and radiated emission | (5) |

PART B

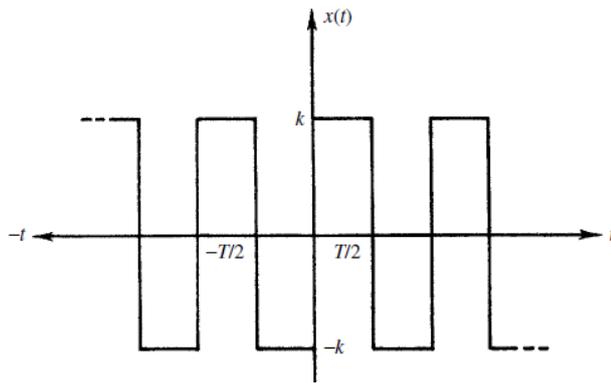
Answer any two full questions, each carries 10 marks.

| | | |
|----|---|------|
| 9 | a) Explain voltage unbalance and voltage flicker | (5) |
| | b) Find the total harmonic distortion of the waveform having magnitude of fundamental component unity and 3 rd , 5 th , 7 th and 9 th harmonics, reciprocal of harmonic number. | (5) |
| 10 | a) What is the need of power quality standards? Mention the various IEEE standards for power quality | (10) |
| 11 | a) Differentiate between harmonics and interharmonics | (5) |
| | b) Explain the mechanism of harmonic generation. | (5) |

PART C

Answer any two full questions, each carries 10 marks.

| | | |
|----|---|------|
| 12 | Obtain the Fourier series expansion of given function | (10) |
|----|---|------|



- 13 a) Define voltage flicker. What are the major flicker sources? (4)
 b) With the help of block diagram, explain in detail about the flickermeter. (6)
- 14 a) How can the aperiodic signals be analysed? Write the expression (5)
 b) What are the information that are obtained from monitoring as part of site surveys? (5)

PART D

Answer any two full questions, each carries 10 marks.

- 15 Explain the procedure for designing the harmonic filter (10)
- 16 Explain power quality issues of grid connected renewable energy sources. (10)
- 17 a) Explain the procedure to shield radiated noise. (5)
 b) Distinguish between active and passive filter. (5)
