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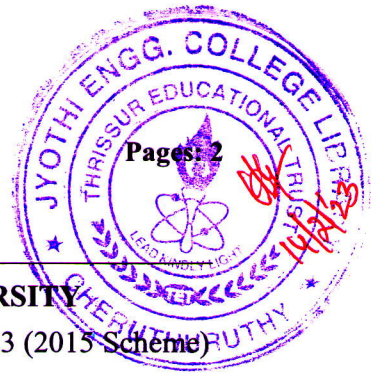
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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination January 2023 (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 Explain long duration voltage variation. Compare long duration voltage variation with short duration voltage variation (5)
- 2 Mention any five IEEE standards for power quality (5)
- 3 Describe how FFT can be used for harmonic analysis (5)
- 4 Discuss on the objectives of power quality monitoring. (5)
- 5 What are the limitations of passive filters. (5)
- 6 Write short note on power conditioners. (5)
- 7 Explain the following electromagnetic interference terminology: (5)
 - a) Shielding
 - b) CMRR
- 8 Explain radiated emissions. Explain the procedure for reducing radiated emissions (5)

PART B

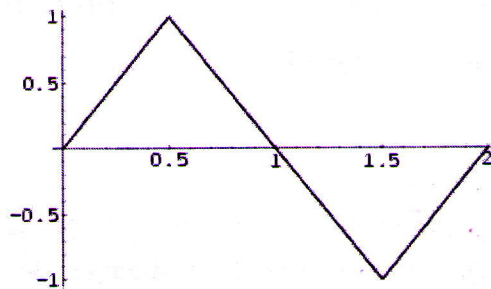
Answer any two full questions, each carries 10 marks.

- 9 Explain the following power quality issues: (10)
 - a) Voltage imbalance
 - b) Undervoltage
 - c) Overvoltage
 - d) Harmonics
 - e) Notch
- 10 a) What are the harmonics sources from industrial loads (4)
b) Explain with an example TIF, DIN and THD (6)
- 11 a) Explain the effects of harmonics on electric drives. (5)
b) What is CBEMA curve for assessing power quality? (5)

PART C

Answer any two full questions, each carries 10 marks.

- 12 Obtain the Fourier series transformation of the given waveform. Consider the triangular wave has a length of $2L$. (10)



- 13 a) Define windowing function. Explain how it can be used for harmonic analysis. (5)
 b) With the help of a block diagram explain flicker meter. (5)
- 14 a) Write short note on Power line disturbance analyzer (5)
 b) Explain how harmonic analysers can be used for power quality measurement (5)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) Explain about the controlling of harmonics using passive and active filters. How active filters overcome the drawbacks of passive filters in controlling of harmonics. (10)
- 16 a) Discuss on the power quality issues of grid connected Renewable energy sources (10)
- 17 a) What are the major considerations for power conditioner selection? (5)
 b) Write short note on EMI mitigation methods (5)
